FACTORS INFLUENCING THE SUCCESSFUL ADOPTION OF
SELECTED E-GOVERNMENT INITIATIVES IN SOUTH AFRICA

A dissertation submitted to the Faculty of Commerce, Law and Management,
University of the Witwatersrand,
in fulfilment of the requirements for the degree of
(Master of Management by Research and Dissertation)

Savithree Subramoney

February 2023

ABSTRACT

Countries globally, including South Africa are moving towards e-government to improve services to its citizens. Implementing e-government requires infrastructure, skills and resources which are not easily accessible in developing countries like South Africa. The purpose of the study is to find out if the factors presented by Altameem, Zairi and Alshawi (2006) were used in three selected e-government initiatives to determine the factors that differentiate the more successful from the less successful e-government initiatives. One of the main findings was that the eight factors were used extensively in the two highly successful e-government initiatives: namely, the South African Revenue Services (SARS) e-filing system and the Smart Identity (ID) card system. These factors were found in the successful e-government initiatives but not all were found in the less successful e-government initiative, the National Population Register.

DECLARATION

I declare that this dissertation is my own, unaided work. It is submitted in fulfilment of the requirements of the degree of Masters in Management at the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination at any other University.

Savithree Subramoney
28 February 2023.

DEDICATION

This thesis is dedicated to God almighty, who has been my source of strength, my ray of sunshine during those difficult days, and who has been beside me throughout my journey. I also dedicate this work to my mother (Poobathy), my late father (Dennis) who has been my inspiration and motivation, my husband (Dickson), my children Theodore, Travers, Timaya, daughter-in-law Majorie and grandchildren Aiden and Alison. Thank you for your patience, encouragement, everlasting love, and endless support.

ACKNOWLEDGEMENTS

First and foremost, I wish to express my deep sense of gratitude and sincere thanks to my supervisor Dr Halfdan Lynge-Mangueira for his guidance, wisdom, support, patience and encouragement throughout my master's journey with him. I would also like to thank him for his support, care and compassion during my time of illness.

I am extremely grateful and indebted to the participants from SARS and the Department of Home Affairs (DHA) who made their time available from their busy schedules for the interviews I conducted with them, and to those who completed the questionnaire. Thank you to the Commissioner at SARS and the Director-General at the DHA for allowing me to conduct research on their e-government initiatives. I would also like to thank the research units in both organisations for their assistance in scheduling online meetings for me and for their support and patience.

I wish to acknowledge my husband Dickson, children, Theodore, Travers and Timaya for their support, patience, and love. Without them, I would not have been able to complete this journey. A special thanks goes to my daughter Timaya for transcribing the interviews for me. Thank you for your constant encouragement and support, and for believing in me.

CONTENT

Page No.

List of Tables

List of Figures

LIST OF ABREVIATIONS

CIO	Chief Information Officer
DHA	Department of Home Affairs
e-filing system	Electronic filing system
e-government	Electronic government
eNaTIS	National Traffic Information System
ID	Identity
ICT	Information and communication technology
IT	Information technology
NPR	National Population Register
OECD	Organisation for Economic Cooperation and Development
SARS	South African Revenue Services
SITA	State Information Technology Agency
UNDP	United Nations Development Programme
4IR	Fourth Industrial Revolution

Chapter One: Introduction

1. Introduction

The First Industrial Revolution began in England at around 1750–1760. This was the beginning of the advancement of technology and the explosion of knowledge worldwide. Technology has advanced and South Africa is now in the era of the Fourth Industrial Revolution (4IR). South Africa, like other countries globally, recognise the importance of adopting e-government to improve service delivery aimed at creating a better life for all in the country. e-government is used to gain the citizens' trust and confidence in their governments (Elkadi, 2013). E-government can be considered as another method of providing a service, which allows citizens to communicate with public administration and government entities. A large majority of the South African population live in rural areas with limited access to technology and e-government services. It can therefore be said that e-government is not the solution to all government's problems.

In the early 1990's, there were e-government systems that were developed and implemented, however it still poses significant challenges even after more than two decades of using various e-government systems, (Abu-Shanab & Khasawneh, 2014). Given the demands facing the South African Government and the limited resources at its disposal, it is crucial that all e-government projects achieve their goals. This study would like to find out, whether the eight factors from Altameem et *al.* (2006) were found in three selected e-government initiatives? and what the factors are that differentiate the more successful from the less successful e-government initiatives.

Three e-government initiatives were selected for this study: SARS e-filing system and the Smart Identity Document (ID) card system are the more successful initiatives, while the National Population Register (NPR) is considered to be a less successful initiative. The theoretical framework for this study is underpinned by the success factor model developed by Altameem, Zairi and Alshawi (2006).

1.1 Problem statement

The adoption of e-government services requires a huge amount of financial resources, and a stringent procurement process needs to be followed by government departments. With all the financial resources, time and effort that is put into the planning, design and adoption of e-government, it is crucial that it achieves its intended purpose. Research has shown that not all e-government initiatives have been successful in South Africa. Pillay (2012) cited the National Traffic Information System (eNaTIS), an e-government system that is being utilised for the application of licensing and registration of motor vehicles, and application for driving licences and learners' licences, as a successful project. However, Singh and Travica (2018) argued that the eNaTIS system challenges resulted in the South Africa's vehicle licensing process coming to a standstill. Apart from the unsuccessful initiatives leading to fruitless and wasteful expenditure, it causes frustration and inconvenience for the citizens. South Africa will have to implement several new initiatives in the coming years, as part of 4IR, and it is therefore crucial for government to understand what determines success/failure. The World Bank has acknowledged that a large percentage of their information and communication technology (ICT) related investments have failed (Independent Evaluation Group, The World Bank, 2011). A number of scholars have claimed that e-government projects have had more disappointments than accomplishments (Anthopoulos, Reddick, Giannakidou & Mavridis, 2016; Guha & Chakrabarti, 2014; Heeks & Molla, 2009; Nurdin, Stockdale, & Scheepers, 2012). A large number of citizens in South Africa have been impacted due to the expensive e-government initiatives that have failed, which also embarrassed politicians and public administrators (Singh & Averweg, 2015). In South Africa, the eThekwini Municipality's Revenue Management System (RMS) project, initiated in 2003, was only completed in 2016 and had a budget overrun of 666% (Nyansiro, Mtebe, & Kissaka, 2021: 3). The budget overrun from the RMS project impacted the South African citizens negatively as the money could have been used to provide basic services in areas where they are lacking. Maremi, Thulare and Herselman (2022) point out that South Africa does not have a separate budget for e-Government implementation. This means that it is taken from the service delivery budget. The limited resources that South Africa has need to be used wisely, as South Africa is a developing country. Some researchers have found that the e-government initiatives that have been implemented in South Africa have been successful whilst other researchers argue that the same e-government initiatives have been unsuccessful. The inconsistencies in literature provides further avenues to study some of the e-government initiatives. There are many e-government initiatives that South Africa has developed and implemented however for the purpose of this study, three e-government initiatives have been selected.

1.2 Context for the study

South Africa is a developing country with a population of just over 59 million people. The Constitution of the Republic of South Africa, 1996, Chapter 2: Bill of Rights, clearly states that everyone in the country has the right to basic services, which include water, sanitation and health, among others. Ensuring access to these services in the most convenient manner is what the government strives to achieve. Gillwald et *al.* (2005) argued that most rural areas do not have the telecommunication infrastructure that is required for the use of internet services. South

Africa which is Africa's second largest economy after Nigeria, has about twenty-two million people living below the national poverty line (United Nations Development Programme, 2003b). When adopting e-government in South Africa, the greatest challenge is the digital divide. The digital divide refers to people who can access the internet and those who cannot. The rural communities that do not have the necessary infrastructure to use the internet will be disadvantaged when it comes to the use of e-government services offered by The Organisation for Economic Cooperation and Development (OECD, 2003). Not all people have technology with internet, which could be due to low income, or lack of skill with technological devices. Smith (2002) indicated that the challenge of the digital divide can be overcome by setting up computers for public use in places such as post offices, shopping centres and libraries. Feng (2003) points out that a major obstacle to e-government systems is the lack of internet access for people living in the rural areas. Steve Briggs, (2021) stated that, "in 2019, Stats SA reported that only 1,2% of households in rural areas had access to the internet at home, compared to 15.4% of households in metropolitan areas and 7.2% in urban areas. With 32,4% of South Africans living in rural areas, this low percentage shows exactly how much needs to be done to provide all communities with internet access at home."

It is important to first close the digital gap before advancing with e-government otherwise the people that are currently disadvantaged will be further disadvantaged (Maumbe, Owei & Alexander, 2008). Basu (2004) argued that even with the digital divide, African countries prioritise implementing e-government as soon as possible, because the longer they delay the implementation, the more expensive it will be. The greatest concern when implementing e-government is definitely the digital divide, and it applies to the many types of public infrastructure; be it airports, roads, or schools. Despite the challenge of digital divide, there are measures that are put in place the bridge the gap of digital divide such as ICT infrastructure is dropping in cost so it has more promise than other infrastructure and the technology can be powered by a small generator. Rural areas may not have the infrastructure for everyone to have internet access, or the proper roads or schoolhouses, but they do have satellite dishes and a cybercafés to interact with the rest of the world. According to Beneke (2018) companies were required to construct public switch telephone network services in rural and semi-urban areas around the country as part of the government's mandates. This was done to bridge the gap of digital divide in South Africa. Oki and Lawrence stated that, "in spite of the fact that the companies were initially successful in connecting the masses, the severity of the problem quickly became apparent when it was forced to terminate over two million telephone connections due to non-payment. Basu (2004) stated that making investments in technology can connect people. To convince the citizens in developing countries that they need access to the internet, would assist them with their needs, through services that can be accessed through the internet, to make it an easier and faster process.

Investing in advanced e-government systems in a developing country is not practical as it is a disadvantage to the inhabitants of the rural parts of the country who do not have access to those services. Such investment is unlikely to meet the service needs of all people and will not be easily accessible especially for people living in the rural areas. Instead, e-government can practically only be considered for a developed country and not a developing country focusing solely on human development (United Nations Development Programme, 2003a). There must be an equilibrium between the provision of basic services and the provision of functional of e-government (Maumbe *et al.*, 2008). The General Household Survey report by Statistics South Africa (2018) stated that, at the national level, the proportion of households with access to the internet was at 64.7 percent, compared to 59.3 percent in 2016. Access is when any person in the household can access the internet which could be from home, an internet café, at work or at a learning institution. Cell phones are used extensively to access the internet in rural areas, nationally, access to internet was at 45 percent in 2018, compared to 38.3 percent in 2016 (Statistics South Africa, 2016). A study conducted by Mutula and Mostert (2010) found that in South Africa, there are some cell phone providers that have infiltrated rural communities and provided them with access to cell phone technology. Vodacom which is a major cell phone provider in South Africa has installed more than 90 000 community-service telephones in the rural areas. This has become highly valuable for the community of phone-shop operators. It is seen that the use of internet is growing every year therefore it is vital that there should be more focus on successful adoption of e-government services that are beneficial to all South Africans. South Africa has a National E-government Strategy and Roadmap, that was published in the Government Gazette in April 2017. The purpose of the strategy is to transform public services in South Africa into electronic services that is useful to all the South African citizens and providing them with the opportunity to utilise digital technologies to ensure a better life for the citizens (Government Gazette, 2017).

1.2.1 Evolution of e-government

The study conducted by Venter, Craffert, van Greunen, Veldsman, Candi and Sigurdarson (2019), found that in 2016, South Africa was ranked 65th among 139 countries in the world, regarding e-government. This effects internet connectivity and the use of e-government services. South Africa has the e-filing system to allow tax returns and payments to be submitted electronically by taxpayers and tax practitioners, this system is used to simplify and fast-track the tax process. According to the Government Gazette (2017), the SARS e-filing system is considered to be a one of the highly sophisticated systems in the world for tax management which has shown improved results on tax collection. The DHA introduced the Smart ID card system for citizens, replacing the previous green book, the DHA partnered with the banking sector to assist with issuing of the Smart ID cards.

Some of the e-government initiatives that have been implemented in South Africa are the Smart ID card with improved security features which the previous South African ID documents did not have. The e-justice system aimed to improve the efficacy of prosecutors and to change the manual justice system to an automated system. Kuye (2002: 87) stated that, “the National Automated Archival Information Retrieval System (NAAIRS) provides a vast amount of information and documents about the national archive services to the people and government. The DHA has the National Identification System (HANIS), which has started an automated identification database of fingerprints to combat crime and provide information for policing, elections, population registration and emigration.”

1.2.2 Challenges faced with e-government

Ziemba et *al.* (2015: 156) stated that, “to achieve e-government success is not straightforward. It involves many different aspects such as rethinking and re-engineering government processes, changing organisational culture and setting new government law that accommodates e-government. It requires proper organisation and cooperation from government officials, senior management, IT experts, and other stakeholders as it involves a number of tasks.” When adopting e-government, it is vital that the government considers certain aspects that are important for successful implementation. IT is about the hardware and software that drives ICT information and it focuses on the systems and tools that enable the management of digital information while ICT focuses on the field of telecommunication (www.seacom.co.za).

In this study the researcher used the term ICT as e-government is more about telecommunication. Heeks (2008) stated that e-government is summarised as information, technology, process, objective and values, staffing and skill, having a management system and other resources such as time and money where the most prominent is a non-ICT factor. Altameem et *al.* (2006: 2) stated that the non-ICT factors are often the reason for e-government failure than ICT factors. Basu (2004) found that e-government has to face the challenge of the digital divide where a part of the population has access to technology and the other part does not. In a developing country, there is a huge gap between the educated and uneducated and between the people living in the urban areas and those in the rural areas.

The educated people residing in the built-up areas have internet access and the technology needed to use e-government services whilst the opposite is true for the poor people living in the rural areas. This consequence of the digital divide could last for a while, and it could also widen the economic gap between the ICT of the elite who have access and the poor who do not have access to technology. These factors could influence the delivery of e-government services as the system would then be biased, favouring educated, urban residents. Illiteracy, the cost of technology, transportation or communications services, has shown, to lead to the failure of e-government adoption (Tele-community, 2012; Rangarirai Matavire, 2010; Dada, 2006).

In South African, there are a large portion of the population who live in rural areas and are not privileged enough to have the required infrastructure for e-government services. However, Kaisara and Pather (2009) argued that the South African Government is steadfast in addressing the digital divide in the country. Some of the work that government has already done, in this regard include the provision of subsidised public access internet, the collection of levies from telecommunications operators to create a common service and access fund; continuous investment in school computing facilities, the gazetting of a national broadband policy in July 2010, and on-going government assistance to support the growth of the ICT industry. Samsor (2020: 52) stated that, "other challenges experienced in developing countries when implementing e-government, include: the lack of ICT literacy, inadequate infrastructure, data security concerns, the absence of ICT culture in government, little or no ICT leadership outside the technologically oriented ministries, a lack of e-government awareness, resistance to change, a historic lack of intergovernmental coordination and low stakeholder involvement."

Samsor (2020) provides more detail on the challenges faced with e-government implementation, the first being the lack or absence of leadership support and commitment, which is a common challenge that leads to e-government failure as such support is needed for funding, political support, awareness programmes, and stakeholder involvement and buy-in. Funding is also needed for ongoing enhancements and maintenance of the e-government projects after they have been implemented.

Resistance to change is another problem with e-government adoption. There are a number of reasons why people resist change; some of them being fear of job loss and disruption in a long establishment structure. Partnership with local, regional and national levels in both private and public sector organisations for the achievement of e-government services is lacking in developing countries. A relationship is required, to build trust among agencies, citizens and users, especially where the e-government programme has not penetrated significantly (Rangarirai Matavire, 2010).

Load shedding started years ago and proved to be a challenge to South African citizens. Mutula and Mostert (2010: 44) stated that, "there was a shortage of power supply in 2008 in South Africa. In the State of the Nation Address in 2008, President Thabo Mbeki (Mbeki, 2008) stated that power outages posed a challenge to the South African nation. The demand for electricity had risen so drastically, that the power stations failed to provide sufficient power to the citizens because there were not enough power stations to meet the demand for electricity. The system as a whole became susceptible to any incidents that affected the provision of a consistent electricity supply." Mutula and Mostert (2010: 44) further stated that, "without access to consistent electricity, social and development activities would become limited. The legacy systems in place at the time were old and outdated which caused many problems. This showed that it is important to put in place transversal systems which help to achieve the necessary horizontal integration required for cross-departmental integration." The Oxford Learners Dictionary define a legacy system as a "computer system or product that is no longer available to buy but is still used because it would be too difficult or expensive to replace" (https://www.oxfordlearnersdictionaries.com).

In South Africa there have been a number of e-government initiatives that have experienced challenges, one of which was the eThekwini Revenue Management System. Thakur and Singh (2013: 46) stated that, "the eThekwini municipality had launched the eThekwini Revenue Management System in 2003 at an estimated cost of R250 million that escalated to R474 million. In Johannesburg there were problems with e-government systems that caused interruptions in the provision of service, which resulted in the people taking legal action against the City Council." The Durban Metropolitan Municipality had paid approximately $1 million in 1999 on a project that would make available web-based information on community and council matters to the people living in Durban. Unfortunately, the project failed in 2002 (Heeks, 2002b).

The Health Information System Programme took a similar approach. The project was launched in 2000 with the aim of transforming the health care in South Africa's public sector. The project partially failed as a result of the high cost (Braa & Hedberg, 2000a; Braa & Hedberg, 2000b). The "Golaganang" project that was launched in 2002 ended up as a failure. It was a combined project between the government of South Africa and the private sector at an estimated cost of $80 million. The aim of the Golaganang project was to give government employees their own ICT which was affordable. However, the project was not successful (Levin, 2002). This cost the country millions of rands which could have been saved if success factors in implementation had been considered.

Heeks (2008) indicated that the rural communities in South Africa have experienced a fair amount of challenges with e-government. One example is the touch-screen kiosks that were set-up in the isolated rural communities of the North-West Province. When the e-kiosks were installed they were well received, however, the e-kiosks did not have local content and lacked interaction. The e-kiosks were of no value to the community and were removed in the same year. Gichoya (2006) concluded that, based on evidence from Kenya, e-government projects are expensive and can result in valuable national resources being wasted. To prevent the wastage of financial resources on e-government projects that fail dismally, the researcher decided to find out if the eight success factors referred to by Altameem et *al.* (2006) were found in three selected e-government initiatives.

1.3 Research purpose

This study aims to determine if the eight critical success factors from Altameem *et al.* (2006) were found in the selected e-government initiatives.

1.4 Research questions

1. Were the eight factors referred to by Altameem *et al.* (2006) found in three selected e-government initiatives?
2. What are the factors that differentiate the more successful from less successful e-government initiatives?

1.5 Expected outcomes

The findings from this study will contribute towards a deeper understanding of existing academic literature; specifically, on factors influencing the success of future e-government initiatives in South Africa; especially as the country is moving towards the 4IR. More e-government initiatives will be rolled out in the future and the findings from this study will be useful to prevent wasteful expenditure.

1.6 Justification for the research

E-government successes are probably the most prominent streams of research conducted. There have being several e-government initiatives that have been successfully implemented by national government departments in South Africa. However, not much research has been conducted on what has contributed to the success of these initiatives. Determining what contributes to the success of the different e-government initiatives is crucial in preventing wasteful and fruitless expenditure in future e-government projects. Larsen & Meyers (1999: 397) emphasised that, "if practitioners are mindful of the "factors and address them during implementation, the system is more likely to succeed." The researcher considers this study to be an ideal opportunity to test a model that was been developed by Altameem et *al*., to determine whether it can also be applied in a developing country like South Africa. The findings from this study will be valuable for the implementation of the 4IR in South Africa, as was envisioned by the President in his State of the Nation Address in 2020.

1.7 Case selection for this research

This section will graphically depict the e-government initiatives that have been selected for this study.

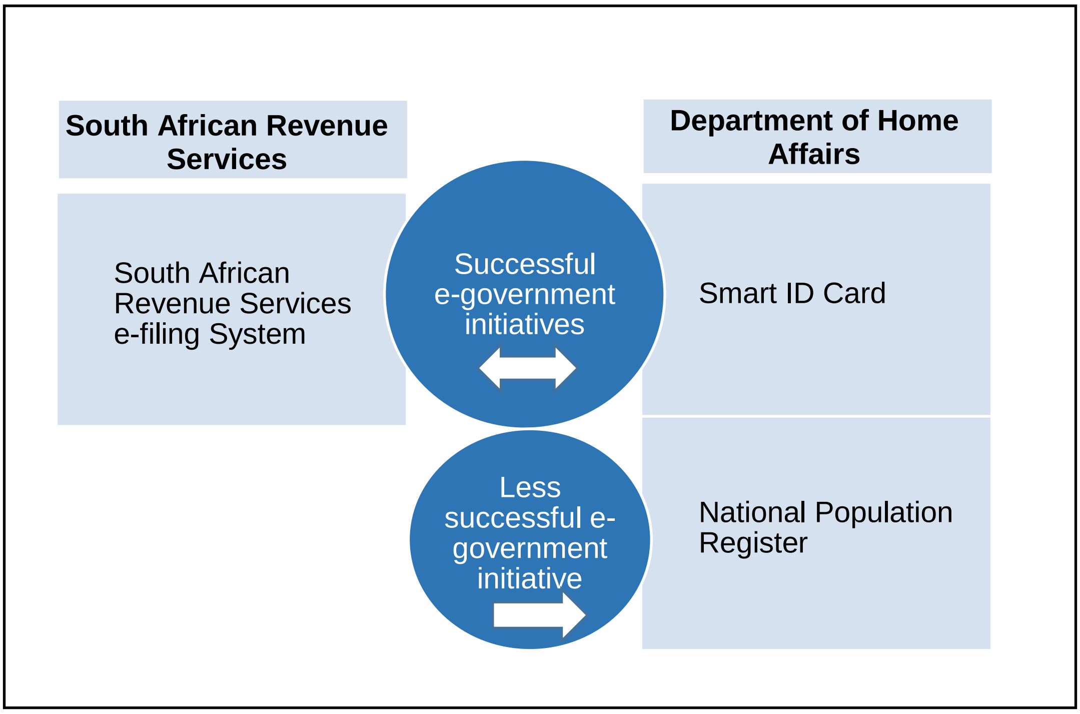


Figure 1.1: Case selection

The researcher has selected two highly successful e-government initiatives, namely the SARS e-filing system and the smart ID card system. The less successful e-government initiative is the NPR which is maintained by the DHA. It will be interesting to find out why one department would have a highly successful and less successful e-government initiatives with the same resources and pursuing the same goals of improved service delivery.

1.8 Structure of the research

An overview of each chapter is presented in this section.

Chapter 2: The Literature Review. This chapter will concentrate on the theoretical framework for the study. Focus will also be on past research that was conducted by researchers on e-government. The researcher focused on the implementation of e-government in developed and developing countries. The types of e-governments were also explained to provide the reader with a brief background on e-government. Critical success factors that were proposed by Altameem et *al.* (2006) are used to guide this study.

Chapter 3: Methodology. A qualitative approach will be followed for this study whereby information was obtained from in-depth, elite interviews conducted with officials who were involved in the development and implementation of the selected e-government initiatives. The officials who were not available for the interviews were given an opportunity to complete a questionnaire, which comprised the same questions used in the interview. Purposeful sampling was used where ten senior officials were selected from each of the two departments working in the Business Unit, IT, and the Project Management Office. Due procedures were followed regarding ethical considerations.

Chapter 4: Presentation of findings. The findings from the interviews and survey conducted are presented in this chapter by means of narrative text. The responses obtained for each of the three case studies are provided in this chapter.

Chapter 5: Interpretation and discussion. Data collected is interpreted and analysed for the three case studies. The eight factors from the Altameem et *al.* model were extensively used in both the SARS e-filing system and the Smart ID Card system; which are the two successful e-government initiatives selected for this research. Not all the eight factors were used in the less successful e-government initiative being the NPR. It is also considered to be a legacy system that was developed a long time ago and it needs to be modernised. SARS first developed the SARS e-filing system which was highly successful and thereafter assisted the DHA to develop the Smart ID card system. This contributed to the success of the Smart ID card system.

Chapter 6: Conclusion and recommendations. In this final chapter, each of the preceding chapters are summarised. The answers to the two research questions are provided in this chapter. Based on the research findings recommendations are presented in this chapter, followed by an overall conclusion.

Chapter two – The Literature review

2. Introduction

Samsor (2020) emphasised that due to the rapid changes taking place globally, governments need to keep abreast with these changes and are required to ensure the provision of services to the people in the country that are efficient, effective, user friendly and available 365 days a year. Technology is an excellent method where the services of both the public and private sector can be integrated in a manner that is transparent, accountable and efficient. However, that objective is not easy to accomplish in developing countries. Kaisara and Pather (2009) pointed out that an e-government system can be well-designed and excellently developed but can still fail if it is not accessible to citizens and is not properly implemented. It is not unusual to hear that even developed countries experience challenges with e-government systems, while trying to offer better service delivery to their citizens (Gunawong & Gao, 2017). E-governance is defined as the digital utilisation of IT in government departments and agencies by automating manual work. This makes it faster and more efficient, especially for completing forms and communicating with citizens (Hameed & Al-Shawabkah, 2013). In Sudan, e-government is making services simpler and more convenient for citizens and rendering government work faster (National Information Centre, 2007a). Li and Abdalla (2014) concluded that e-government is making use of technology to ease the operations of the government when providing services to the citizens. This chapter of the research will focus on past studies conducted on e-government; looking at developed and developing countries so that lessons can be learnt from their experiences. There is no one size fits all, however the lessons learnt can be customised for a country. The researcher also provides the theoretical framework in this chapter that will guide the research.

2.1 Definition of electronic government (e-government)

In the past, governments throughout the world have been doing their administrative work manually. However, they are moving towards automating their work. Basu (2004) defines e-government as the automation of manual-based documents in order to be more efficient, effective and responsive to the needs of the citizens. This assists with better and improved communication between government and citizens. The digital transformation in government also requires new styles of leadership to lead the new way of working and to obtain buy-in and support from stakeholders. Government aims to provide a citizen centric services, which must be easily accessible, user friendly and efficient. Ndou (2004: 3) described e-government as, “the use of ICT tools to change the internal and external way of working in the public sector, as well as a method for communicating with the stakeholders.” The Organisation of American States (2010) indicated that e-government is the utilisation of ICT when performing functions to improve efficiency, ensure openness and transparency and increase participation for citizens. Maumbe, *et al.* (2008) argued that existing e-government definitions indicate differences in how e-government is understood. They went on to state that there is a lot of importance placed on the change aspect, whereas importance should rather be placed on the desired outcome.

Maumbe *et al.'s* (2008) definition was clear, concise and comprehensive and is used for this study. They refer to e-government as the utilisation of any ICT to improve government service delivery and internal processes. Basu's (2004) definition does not necessarily apply to all countries as it depends on each county's state of readiness. Ndou's (2004) definition was quite ambitious as it includes the words; "change the public sector." However, in South Africa it is more of a gradual process of introducing e-government to improve the delivery of services to the citizens.

2.2 Benefits of e-government initiatives

Some African countries including South Africa may feel pressurised in moving towards the 4IR as some of the developed countries have made great progress in e-government implementation (Ciborra, 2005). E-government can greatly help African countries to uplift the living standards of the citizens. Some of the advantages of e-government are, making government information and services more easily available, reduced paperwork, decreased response time, increased participation in government, improved government accountability and transparency and reduced costs (Gillwald, Esselaar, Burton & Stravrou, 2005). Ndou (2004) stated that e-government helps to ensure that decision making processes are transparent. E-government provide citizens an opportunity to communicate in forums and in online communities, to view their opinions and give recommendations on matters that involve them. It is important that web sites are designed and developed in a way that is transparent so that people, industry and other stakeholders can see the information on politics and government, rules and policies are working. In the past, people had to go to government departments if they needed information, but now they are able to access the information on the web. This service will help to build confidence in government and improve the relationship between the government and the people. Effective communication between government and citizens can strengthen government's responsiveness and deepen citizens engagement (Vivier, Seabe, Wentzel and Sanchez: 2015). UN-Habitat, (2009: 93), state that, "It is also often through information exchange that citizens express their opinions or viewpoints against which government responsiveness and accountability can be measured. Government is aware of these opportunities which plays an important part in the overall promotion of government effectiveness. The advantages of e-government have resulted in government, of many countries eager to adopt e-government programmes.

Mutula and Mostert (2010) showed that several countries throughout the world recognise the importance of e-government to improve service delivery to citizens. Service delivery contributes positively to quality, capacity, service continuity, availability, general management and financial management. Besides, service delivery in general it describes the way in which governments provide services to citizens. South Africa has been observing the changes taking place globally with e-government and recognised the advantages of automating systems therefore the country has embarked on adopting e-government to ensure efficient and effective service standards and to improve the operations of government. Mutula and Mostert (2010) further stated that due to governments realising the advantages of e-government, investments in ICT infrastructure have been increasing progressively. The utilisation of ICT is of utmost importance in reducing poverty and helps to upgrade the socio-economic climate and improve the life of the people. When ICT is used correctly, it is likely to capacitate people to handle development problems, manage social challenges, and bolster democratic institutions better. A country must be able to effectively implement and utilise ICT in order for it to be beneficial.

On the other hand, large amounts of money are spent on e-government initiatives by countries all over the world. Developing countries have limited financial resources which must be used for the maximum benefit of the citizens in the country. Therefore, it is a high priority that practitioners should understand and reduce the risks in e-government projects. Ziemba, Papaj and Jadamus-Hacura (2015) stated that, for e-government to be adopted, the identification of determinants and barriers influencing the e-government success is needed. It is against this background that the researcher has decided to commit to this research. Napitupulu & Sensuse (2014) emphasised that studying critical success factors provides a good understanding on how to successfully design, develop and implement e-government.

The two objectives of e-government are for internally focused processes referred to as operations and for externally focused services. The external objective is to ensure service delivery to the people of the country, businesses, and other agencies at all times, without people having to wait in long queues, by making interactions simpler when people are using various government online services. Its internal objective is to ensure swift, transparent, accountable, efficient, and effective public administration activities, resulting in substantial cost savings per transaction for the government (Backus, 2001).

Government expenses are reduced, and business between government and stakeholders is made easier and faster through the use of ICT tools. Transactions that are done faster and better ultimately leads to bigger investment (Hobbs, 2001: 46). E-government services can make government information and services available 365 days a year to previously disadvantaged people. The e-services can also improve political participation across economic, educational, geographical, and cultural boundaries, and deliver the services that people require. E-government can eliminate the multiple layers of bureaucratic procedures. Through e-government an interest can be created amongst the young people in the political process as they often use the internet (MacIntosh et *al.* 2003: 49). By adopting e-government which provides information on government services to the people it leads to governance being more democratic. E-government is able to provide services and information to all people also giving them an opportunity to interact directly with government through online public platforms and allows them to learn more about political activities. People who were previously side-lined can now benefit from what e-government has to offer.

E-government systems help to decrease unnecessary administrative practices and red tape. In addition, such systems assist governments to promote transparency and minimise the likelihood of mismanagement and fraud (The Economist, 2003: 38). According to Seifert and Bonham (2003), some of the advantages of e-government are, open and honest administration, minimise fraud and corruption, and improved participation of citizens in the political sphere. There are fewer mistakes made by people when systems are used as these are automated and improves accuracy. The levels of accuracy are appreciated most when staff are doing repetitive tasks that are very important, for example the collection of taxes and customs duties.

Kumar, Mukerji, Butt and Persaud (2007: 64) stated that, “e-government can offer better public services whereby information can be provided through various channels that are accessible 365 days a year, without officials having to be physically present at government offices. Other benefits of e-government are improved relationships between the government and stakeholders such as businesses and the public. The community is empowered through easily accessing information and more efficient government implementation can easily be provided by means of better coordination between government agencies using various channels.”

Naidu and Chand (2018: 2) stated that, “e-government also has some disadvantages especially in developing countries. The development, implementation and sustainability of e-government services is expensive, skills and education level of people need to be upgraded so that they are able to utilise the e-government services.” There are many countries globally which has e-government services however the utilisation level is low (Bhuiyan, 2010). The provision of e-government services is not worth it if people do not have the right skills to use the services.

2.3 Review of past studies conducted on e-government in South Africa

Over the years a number of studies have been conducted on e-government in South Africa. Some of the studies that were reviewed for this research focused on e-government implementation: A reflection on South African Municipalities by Mawela, Ochara & Twinomurinzi 2017, e-government challenges by Singh & Travica, 2018, and the adoption of e-government in the Department of Home Affairs within selected service centres in Limpopo by Nokele & Mukonza, 2021. Mawela et. al, (2017) used a qualitative approach for their study whereby data was collected from a workshop with 40 attendees from various municipalities and the researchers conducted an additional 5 semi-structured interviews. Purposeful sampling was used to obtain the most productive sample. Municipal ICT representatives were selected as participants for the study who provided their experiences with the implementation of e-government in South African municipalities. The most pertinent issues found by Mawela *et al.* (2017: 165) from their respondents, “were around areas such as lack of funding, shortage of skills, poor leadership and the profile of ICTs in municipalities”.

Singh and Travica (2018) used a qualitative approach for their research, the data was collected through interviews and the questions were derived from literature. A theoretical sampling approach was used where 36 participants were selected, who had a direct involvement with e-government policy development or project implementation and evaluation. This approach successfully resulted in Singh and Travica finding the challenges surrounding e-government systems in South Africa. Singh and Travica, (2018: 12) categorised the challenges into four areas, “the circumstances in which senior managers find themselves presents one set of challenges which are the lack of the ICT skills, imposed relocations, frustration with decision making, and the practice of rubber-stamping”. Another problem area that was found by Singh and Travica, (2018: 12) refers to the, “senior managers' positioning vis-à-vis e-Government systems; they are sceptical of the credibility of system outputs, reject the primary user role, and demonstrate ivory tower behaviour”. They further found that problems with organisational processes also occur in the forms of prolonged and difficult bureaucracy. Finally, policies on e-Government systems are either missing or ineffective.

The study conducted by Nokele and Mukonza (2021: 98), “investigated the factors affecting the adoption of e-government in the selected Department of Home Affairs centres in the province of Limpopo. A qualitative approach was employed with data collecting tools such as face-to-face semi-structured interviews used to glean information from nine officials, three from each of three centres, consisting of management and help desk (junior) officials.” Purposeful sampling was used for this study where the researcher selected officials who were knowledgeable and experienced on the subject matter. The data collected from the interviews were triangulated with literature that were reviewed for the study. The methodology produced the factors that affected the adoption of e-government in the three selected centres that were chosen for their study. The first factor was on e-government policy, there is a strategy but it is not funded, the second is the age factor where most older people are not computer literate, the third factor is previous experience and motivation, officials who used computers in their previous jobs are better able to relate to ICTs in the department whilst other officials need to be trained and workshopped on new programs. The last factor was poor infrastructure development in the rural areas.

From the three studies that were conducted on e-government in South Africa, it is clear that the qualitative approach using purposeful sampling and semi-structured interviews would be most suitable method for data collection for this study that the researcher will be embarking upon. The three studies focused mainly on the challenges experienced with e-government therefore this study will fill the gap by finding out if the e-government success factors developed by Altameem *et al*. in 2006 are found in the three selected e-government initiatives, two being highly successful and one being less successful. This will assist in minimising future challenges with e-government adoption. The detailed methodology for this study will be explained in chapter three.

2.4 E-government in developed countries

It is imperative to learn from the experiences of developed countries so that the same challenges can be avoided in future and that good lessons can be customised for developing countries. In the following section, we take a closer look at four developed countries: Singapore, Canada, Australia, and the United Kingdom. The purpose of this section is that developing countries, including South Africa will experience challenges when implementing e-government. The developed countries have been through the process of overcoming such challenges. Developing countries like South Africa can learn from the experiences of developed countries. Some of the challenges can be prevented and the lessons learnt from the experiences of the developed countries can form part of the recommendations for this study.

2.4.1 Singapore

Chan, Lau and Pan (2008) stated that a number of reputable studies have found Singapore to be a leading nation for its e-government efforts. The Singapore government began making a concerted effort to utilise ICT as long ago as the early 1980s when the government embarked on its Civil Service Computerisation Programme. The aim of the programme was to change the

Singapore government into a world class implementer of ICT and their focus was on enhancing work processes by automating it and minimising manual work.

By 1999, the global technological environment had drastically changed with new innovation and the use of the internet. Chan et *al.* (2008) stated that Singapore was quick to respond to the changes taking place in the technological environment and launched the first e-government Action Plan in 2000, superseding the Civil Service Computerisation Programme. Quick progress was made in the country, in 2003, most of the administrative services provided by government to the citizens, businesses and government employees were successfully made available online. Singapore was being acknowledged as an international leader in e-government. The Public Service Infrastructure has since become the underlying infrastructure whereby e-government services are made available at any-time and anywhere provided the user has internet access.

Chan et *al.* (2008) stated that the government in Singapore tried to make e-government services citizen centric. To do this a centralised web portal was used as the single gateway for all the different e- government services. The two main characteristics of the ICT infrastructure were its robustness and reliability. Should there be a major problem with the Public Service Infrastructure leading to its failure to operate, then all the e-government services from the various government agencies in Singapore would be moved offline. Chan et *al.* (2008) pointed out that this situation was definitely unacceptable, especially as some of the government services offered were only available online. Therefore, it is essential that ICT infrastructure has to be reliable enough to ensure full availability of e-government services. The Public Service Infrastructure was designed in such a way so that new e-government services can be added, even while existing e-government services are still being deployed and are operating. The Public Service Infrastructure had to be expandable and have the capacity to add new e-government services periodically.

Chan et *al.,* (2008) advised that there had to be an alignment between the e-government info structure and their e-government vision. This would not only lead to the attainment of strategic e-government goals but would also result in consistency with the different e-government initiatives. Making citizens aware of the e-government initiatives is essential for it to be utilised and must be included in its implementation. Numerous awareness activities and strategies were utilised by the Singapore government to make the citizens aware of the e-government services. Chan et *al.,* (2008) suggested that every now and then there must be some events like road shows, exhibition, and even advertisements on newspapers, radio, and public billboards to make sure that the citizens were aware of the various e-government services that were available to them online. The government held a national IT literacy programme to train the people with basic information communication technology literacy skills, so they could do their own online transactions and utilise the e-government services. Singapore has an E-government Implementation Framework, and the framework offers a formal process to plan and strategise their e-government implementation in an extensive yet intensive manner.

2.4.2 Canada

Charih and Robert (2004) indicated that government online is a extension of prior efforts made to bring in innovative technology in the government, in order to minimise expenditure and deliver improved service to the Canadian people (Government of Canada, 1994a as cited in Charih and Robert, 2004). The government aims to provide online services to the Canadian citizens as well as foreigners by making use of a single web portal (Government of Canada, 2000b as cited in Charih and Robert, 2004). This major project has three phases or tiers. The first phase, which was completed in December 2000, allowed Canadians to access all information on government programmes and services offered by twenty-eight departments and agencies, through a single window or portal. Phase 2 which was scheduled for 2004 (was extended later to 2005), concerns the delivery of services and the objective of phase 3 is the integration of the provinces and municipalities in government online. D'auray (2003) stated that the Government of Canada had made outstanding progress in developing an e-channel, which improved citizen access and use of the programmes available to them, and in providing “real-time” electronic options for a number of key transactions. There has been a steady increase every year in the overall rating of the quality of services that the public receive from their federal government with regard to government online. It increased from 59% in 1999 to 67% in 2002 (Communication Canada, 2002).

A citizen centric approach was followed when the Government of Canada’s Common Look and Feel standards were developed, this was done through extensive consultations with Canadian citizens. The aim of government online was to make sure that the all people of the country had equal access to the e-government services irrespective of their internet skills, physical location or demographic representation. The success of Canada’s e-government is dependent on them to keep up to date with the ever-changing expectations and preferences of Canadians. The COVID-19 pandemic caused a sudden and unexpected move towards the use of technology in Canada, including the shift in government service (Boin, Brock, Craft, Halligan, Hart, Roy, Tellier & Turnbull, 2020). Prior to the COVID-19 pandemic, the shift to digital services was unhurried and gradual. The pandemic swiftly expedited the use of online services by various levels of the government (McMullin, 2021). This resulted in the barriers to e-government services being exacerbated especially among the vulnerable sections of the population.

2.4.3 Australia

Teicher and Dow (2002: 233) stated that, “the Australian federal, state and territory governments made ambitious but achievable, assurances to the provision of electronic services. The Prime Minister made a commitment in 1997, that all relevant services would be made available electronically by the end of 2001 and it was achieved. E-government services are targeted for different groups, including businesses, community organisations, students, and government.”

In 2000, the government online strategy was released by the Australian federal government (Department of Communications Information Technology and the Arts, 2000), which provided a framework for, among other things, the facilitation of cross-agency services through the internet. In the same year, the government announced a whole-of-government Portals Framework to provide a citizen centric approach to its e-government services. This framework was to promote the creation of cross-agency services and allow people to interact with government online, without having to know how government is structured (National Office for the Information Economy, 2000:1).

Dunleavy, Margetts, Bastow, and Tinkler (2008) found that by 2003, 47% of the population was making use of e-government services. There were no additional expenditure initiatives on e-government after 1999. In 2006, a new “Service Agenda” was introduced, claiming that Australia would retain its place as an e-government leader, every year from 2006 to 2010, in support of programme outcomes, the government undertook to send 10% fewer letters, either paper or electronic, to citizens. By 2010, the government only needed to fill out 50% of forms (AGIMO, 2006).

O’Sullivan and Walker (2018: 496) stated that, “the Australian government remains committed to e-government despite periodic setbacks. The process provides opportunities for substantial service development as well as operational efficiencies. Money would be saved from increased transactional efficiency, but innovation may also allow for new and improved services in regional and remote parts of Australia.”

The challenge faced with distance may be overcome by the use of online services leading to improved levels of social capital among community members (Park, 2017: 400) and do so in cost effective ways. O’Sullivan and Walker (2018: 503) stated that, “e-government continues to be an important aspect of public sector transformation driving cost savings, service efficiency and innovation. In Australia there has been increasing and continuous commitment to the provision of e-government services to the citizens.”

2.4.4 United Kingdom (UK)

Pleace (2007: 62-65) stated that “successive governments in the UK have wanted a more efficient administration through computerisation for decades. Many of the early projects were undertaken by agencies on a large-scale to streamline their administration, these projects were considered to be a mixed success or were very expensive failures. Successive governments were not discouraged by these experiences and by the early 1990s, much of the day-to-day administration of public services had been at least partially computerised. The number of staff employed to do administrative work was reduced. Instead of having five or six administrative staff to answer the telephone or dealing with emails, within each of five or six departments, there was one staff member supporting a telephone call centre/website portal that dealt with all enquiries.”

Pleace (2007: 65) emphasised that, “the central UK government had expressed its commitment to this mode of reform through the Directgov website portal, which was designed to provide public services all in one place. Total automation in public administration is pure bliss, as most of the costs of interacting with the state is then the responsibility of an individual who processes their own requests, aided by automated online systems, creating a self-service delivery system. An individual does all or most of the work that was previously undertaken by administrative staff, with the portal or website of the service guiding them through the process.” In 2006, the UK went through some challenges with the implementation of e-government. Pleace (2007: 67-68) indicated that, “the first issue was a decrease in the rate at which the population was reaching out for access to the internet. A similar effect had been experienced slightly earlier in the US. The poorer households and individuals that were excluded, as well as other digitally excluded groups such as older people, were resistant to policy initiatives. Secondly, there were problems in respect of engagement. Citizens had looked at what was being provided in terms of electronic service delivery and in some cases were dissatisfied. The third issue was the realisation about the capacity of self-service electronic service delivery to handle more complex transactions with the public.” Pleace (2007: 68) further stated, that “the fourth issue was around privacy and human rights. This issue centred on the compatibility of e-government and the electronic service delivery model with citizens’ privacy and their right to control the ways in which their personal information was processed by government and other agencies.” Pleace (2007: 69) said that, “the web then became a tool to facilitate democratic debate, raise citizen awareness and increase political participation if the population could be persuaded to use it that way. Some citizens use the web as a way of seeking information on issues and expressing their opinions, all of which adds to the democratic life of the UK.”

A study conducted by the United Nations (2010) found that UK provides the most advanced e-government services in the world however, a study by the OECD (2009) as cited in Weerakkodya, El-Haddadeha, Sabolb, Ghoneima, and Dzupkab (2012) found there is a low percentage (32%) of the population in the UK that are making use of e-government services. Weerakkody & Dhillon, (2008) stated that that UK government developed a comprehensive strategy together with a clearly defined plan and powerful leadership together with the resources from the private sector to achieve the e-government vision.

2.5 E-government in developing countries

The section above provided the reader with information on e-government in developed countries. The developed countries have overcome many challenges with e-government which developing countries can learn from and avoid similar challenges. Meiyanti, Utomo, Sensuse and Wahyuni (2018: 1) define a, "developing country, also known as a less-developed country, as a nation which has three conditions, a low living standard, an undeveloped industrial base, and a low Human Development Index, compared to other countries." Basu (2004: 100) state that, "it is easy for people in developed countries to visualise a situation where all communication with government could be done over one counter throughout the year, without waiting in queues. However, to achieve the same standard of service for developing countries is far more challenging." Developing countries are inclined to experience more failures than developed countries in implementing e-government. This section will focus on the experiences from other developing countries.

Ndou (2004: 6) stated that, "it is known that ICT offers more opportunities for economic development and plays an important role in rapid economic change, productive capacity improvements and international competitiveness enhancement for developing countries. The variety of choices and opportunities in developing countries is expanding. ICT is believed to be a powerful tool to resolve some of the key barriers and challenges for entering the global economy and for future growth potential. It is able to overcome past challenges and present incredible opportunities for sustainable economic development, similar to what it has done for businesses in the industrial world." Ndou (2004) further went on to say that ICT also poses a number of challenges for developing countries. One of the challenges is the digital divide which exclude the underprivileged from benefiting from the new systems. Countries that do not adjust and accept the changes taking place with technology will be disadvantaged in the form of lack of information, which could result in a wider gap in economic status and competitiveness. Ndou (2004: 7) stated that, "some countries have realised the benefits of e-government and assisted by international organisations for development, have commenced with e-strategies and initiatives to address a wide range of economic, social, technological, infrastructural, legal and educational issues."

Apleni and Smuts (2020: 17) stated that, "readiness for e-government in developing countries is dependent on a number of favourable political, cultural, social, economic and technological conditions that need to exist for e-government to progress. In countries where e-government is competing with other significant factors such as housing, health services, and a high unemployment rate, these conditions are difficult to establish in the short term. The next section discusses e-government in some of the developing countries."

2.5.1 Kenya

Wamoto (2015: 907) stated that, "the first e-government strategy in Kenya was developed in 2004 and was approved in December the same year. The purpose of the strategy was to create order and harmony in government ICT initiatives which were, at that time disorganised and lacked coordination. Each department followed their own ICT agenda which resulted in wastage through duplication of resources. Therefore, the key strategy was to set up ICT institutions that would immediately address the disharmony and lack of coordination. The Directorate of e-government was to oversee, among other mandates, coordination of implementation of strategy, formulation and communication of ICT guidelines and enforcement of national and international standards." Wamoto (2015: 907) further stated that, "in Kenya currently, the e-government is used for general administration. Individual departments run their own systems, for instance the national tax system, the immigration information system, the legal information system and education system. Information exchange in these departments are done manually." Wamoto (2015: 907-914) stated that "the people in Kenya put pressure on the government to deliver efficient services, which resulted in the adoption of e-government services. The competency factor was very weak and was regarded as an impediment to e-government implementation in Kenya. Four factors were identified which included inadequate ICT infrastructure, insufficient funding, lack of computer skills and design as the main causes of e-government failure in Kenya."

2.5.2 Iraq

Mohammed, Aboobaider, Ibrahim, Abdullah, Ali, Jaber and Shawkat (2016: 4312) reported that, "the Iraqi government had formulated a clear strategic vision with the aim of achieving a perfect e-government. Since 2010, the Iraqi government has consulted with all stakeholders to guide the transformation process of e-government. The vision considered the needs and opportunities of national and local development. The vision of e-government was suitable for Iraq's National

Development Strategy and the Millennium Development Goals of Iraq, and the National Development Plan; as well as with the public sector development approach." E-Iraq (2012) stated that it accounted the role of e-governance in day-to-day operations, and the importance of implementation which had an impact on the improvement of internal and external procedures.

The Iraqi government has for some time been defining the strategic vision for e-governance, which is to optimise ICT tools to improve basic services to all and to promote all-round good governance, including increased public participation, better social equity and justice, as well as a general enhancement of the transparency and effectiveness of public institutions, in order to build the necessary platform for a competitive, robust and knowledge-based economy. As stated by Mohammed et *al.* (2016), Ie-GP, (2013) the Iraqi e-government has a number of accomplishments which include the e-health system, an e-education system, an e-municipal system, an e-personal record and an e-form. Many of these systems were launched in a portal called the e-Iraq Portal. The government took advantage of social media such as, Facebook and YouTube to share information and data with the people. Some of the challenges experienced in Iraq are inadequate budget, insufficient technical expertise, resistance to new technology, computer and internet illiteracy, and threat to personal freedom.

Technical staff is very important for the implementation of e-government as they are required to develop programmes, resolve problems and manage the operations, many employees are reluctant to change, specially to new technology. Mohammed et *al.* (2016), Ian, Sharief and Graul (2007) stated that the technical staff did not want to change their routine and perform extra tasks. Support from management is very important in e-government to achieve the goals. The influencing factors are organisational structure, trust, top management support, and the validity and reliability of information. Iraqi organisations comply with the organisational structure. Mohammed et *al.* (2016), Ali (2013) explained that it was necessary to restructure the organisations in Iraq in order to accommodate the new reforms and services to the citizens. They went further, stating that a good manager needs to present an optimist view toward the employees, by motivating them to make a concerted effort in their work, and vice versa.

2.5.3 Indonesia

Behrens, (2012) study on e-government in Indonesia found that the experiences thus far had shown limited success, and that there was no coordination between the stakeholders. There was also no urgency for a national policy on e-government (Behrens & Kholid, 2011). The Indonesian experiences with administrative reform had not been good and showed a vast gap between desired goals and an unsatisfying reality. The National Ministry saw a big problem with the inadequate technical expertise for reform approaches, particularly in a "missing agenda trajectory" (Prasojo, 2012*)* stated that the main problem seemed to be the unwillingness of government to change their mindset to a new approach of professionalism and to follow a reform agenda (Behrens, 2012). Behrens (2012) stated that, "such an understanding of professionalism is based on history, culture and individual mindset, but also on the prevailing working conditions. The current way of doing things which includes the organisational setting, work standards and important structural components such as the system of remuneration and incentives do not support the more professional, citizen centred and democratic governance. While complaints about the low performance of the government are clearly and often expressed, the active citizen, who wants to create pressure towards change, is still more of a vision for Indonesia than a reality." The orientation on traditional authority is strong and culturally embedded, and not only among less educated people in rural areas, while legal authority as a basis for democratic governance remains weak (Dina Agus in Behrens, 2012). Overall, democratic culture in Indonesia is still at the beginning of its development, in the government, in parliament, and in civil society.

Behrens, (2012: 44) indicated that, "national government did not have the necessary leadership for the complicated process of e-government. There is disintegration of government policy on national level, and due to weakness in the policy on regional autonomy between the different levels of government one wonders if the necessary leadership can be achieved. Another important aspect to consider in achieving e-government is the digital divide. The important question is how many people have access to the internet and actively use it." Behrens (2012: 44) further stated that, "this represents a technical challenge countrywide of how the government could go about providing availability of high-speed internet access as a supporting technical system. went on to state that, it included a cultural aspect, which involved social patterns of communication and interaction, as well as the reality of what such a system means for a person in the public sphere that he or she has access to, and how that person can actively participate in it."

Behrens (2012: 44) state that, "Indonesia needs fast development, but it is still a highly uneven society. The gap in living conditions between centres and remote areas, such as between the modern, international, digitalised business district of Jakarta and the neighbouring kampung remains enormous. The cultural divide, which includes using digital media, is one of the main obstacles for Indonesia's future in general, as it has dire consequences for the democratic culture of the country, particularly if it is seen together with the prevailing attitudes towards traditional authority. Bridging gaps is the potential that the internet brings to life, and could be the mission for an e-government project for Indonesia."

2.5.4 Botswana

Nkwe (2012: 43) stated that, "in Botswana there have been dedicated efforts to encourage the proliferate of e-government implementation. From this line, an enthusiastic team has been delegated the task of motivating the people to make use of e-government projects, evaluate the cost of ICT infrastructure." Bwalya and Healy, (2010: 26) stated that, "massive projects were implemented such as the Kgalagadi radial fibre network; setting up a government data network, that has been put in place, and making people aware of the e-government services.

Nkwe (2011: 132) stated that, "significant effort has been directed towards e-learning in Botswana. There is a national e-learning committee in Botswana that is tasked with formulating and promoting e-learning. The Ministry of Education takes e-learning seriously and wants to motivate its partners to consider e-learning as one of the possible teaching methods in Botswana." Nkwe (2011: 132) further stated that, "the government has started to form a relationship with developed countries to get assistance on e-health. Projects on e-health involve huge amounts of financial and human capital. In 2008, the government of India and Botswana went into partnership, which resulted in Botswana receiving sophisticated e-health machines from India." Nkwe (2012: 44) mentioned that, "the government considers e-health as a means to achieve increased quality, safety, timeliness and efficiency. Some of the projects such as telemedicine, an Integrated Patient Management System and a Health Workers System are already in use."

Nkwe (2012: 45-46) stated that, "some of the challenges that were experienced by Botswana with the adoption of e-government. The infrastructure for telecommunications is not accessible to all areas in Botswana. In areas where it is available, it is quite expensive. There are also problems with the infrastructure, which is outdated and only available in a few better developed towns and villages. Inadequate funds for e-government deployment are another challenge. E-government systems involve substantial financial resources, and the resources must be allocated to developing and managing systems, building up technical infrastructures, and coordinating systems and initiatives (UNDP, 2006). The digital divide, which is common in most developing countries is described as the difference in the number of telephones, internet users or computers per head between rich and poor countries (Kenny & Fink, 2004)."

Mutula (2005) in their study of the global digital divide, pointed out that the size and importance of the digital divide has been exaggerated and that current trends suggested that it is actually shrinking, not growing. Nkwe, (2012: 46) stated that, "ownership of computers and inequalities in internet access are among the most common and important challenges faced today in implementing e-government. The digital divide in developing countries in general and Africa in particular, is closely tied to the contextual economic environment of the respective countries.

There are limited IT skills and training including a lack of computer literacy among the citizens, businesses, and government sectors. A significant amount of training has to be done in terms of ICT training."

Nkwe (2012: 46) stated that, "people in Botswana who have ICT skills are limited. The majority of those who have them are young citizens; thus, the elders tend to be left out in adopting e-government. The other major problem is that there is a lack of skills even with the government employees who are supposed to make the e-government function efficiently. Lack of citizen awareness and involvement is another challenge experienced in Botswana. One of the best facilities introduced by banks is the mobile banking service. However, Botswana citizens still prefer to spend hours in a bank just to get an account balance or to transfer funds."

2.5.5 Nigeria

Asogwa (2012: 146-147) asserted that, "in Nigeria, the federal government initiated a project termed the National E-government Strategy. The purpose of the strategy was to promote the use of ICT infrastructure to achieve efficiencies in the public sector and higher productivity, economic growth, national competitiveness and thereby attain the vision 20-2020. At the declaration in 2003, it was anticipated that all Ministries in Nigeria would have a web page and an official website where there would be links to other ministries, departments, regions/states, local governments, institutions, where the majority of the citizens could interact. The government would provide more and updated archival information on websites where Nigerians could search for government information. Electronic interactions between government and the citizens would improve, with the ability to interact with Ministers and government officials or contact them online through e-mail and telephone."

Asogwa (2012: 147) stated that, "the government would provide improved opportunities to render online services to the public. That would have ensured that two-way communication flow between government, ministries, states, local government and citizens would be stronger. Unfortunately, these expectations are far from being achieved in Nigeria today for a number of reasons. For example, there was not a lot of enthusiasm on the implementation of integrated online public services." Asogwa (2012: 147) further stated that, "many government transactions in the public sector are still done extensively through physical contact. Bloated bureaucracy and unemployment, incessant bombing and terrorism, kidnapping, armed robbery and so on, have dimmed the light of e-government."

Despite the challenges faced by Nigeria with the adoption of e-government, the study conducted by Asogwa, (2012: 149) revealed some of the e-government benefits that are available to citizens in Nigeria, "There were improved efficiency of public service and increased transparency in government ministries, faster access to government information, lower cost of administration, reduced bribery and corruption, minimised physical contact with government officials and an improvement in democratic principles." Adeyemo (2011: 12), stated that, "there was a reluctance of government to share information, the low level of IT skills, an uneven distribution of internet facilities, the digital divide, poverty and insufficient allocation and judicious use of financial resources were some of the barriers to effective e-government implementation in Nigeria." In their analysis of technophobia in Nigeria and other developing countries, Mundy and Musa (2010) reported that more Nigerians were gaining access to computers at home.

2.5.6 Egypt

Zaied, Ali, El-Ghareeb (2017: 70) stated that, "Egypt, is a developing country with an economy in transition, which started to invest in building its communication and IT infrastructure in 1985, as a tool for development. In the past, little attention was paid to service quality or responsiveness to clients by government organisations, but this changed with the new mode of reform. E-government was introduced in the field of public administration in the late 1990s." Al-Shehry, (2008) provided some e-government systems to develop the implementation and increase citizen adaptation in Egypt. These systems require implementation of governing, social and IT strategies as follows:

I) A Vision should be in place from the beginning of the planning process, it creates a picture of the future, so as to realistically clarify the way forward and generate commitment to performance (Al-Shehry, 2008).

II) Leadership: Al-Shehry, (2008) stated that it is a critical factor for e-government success. E-government adoption requires a strong leadership structure with a vision.

III) Training: is an important factor in e-government because if people are unable to use the technology, it would be available but could not be used (Al-Shehry, 2008).

IV) Collaboration: e-government requires collective efforts from many government and public sectors so that there is buy-in, support and participation (Al-Shehry, 2008).

V) Awareness: includes using mass media to introduce the benefits of e-government to the people in the public sectors, as well as emphasising the importance of implementing e-government (Al-Shehry, 2008).

VI) Information and Communication Technologies: communications infrastructure is crucial in implementing and developing e-government. it is not only about sufficient distribution of computer technology or and social initiatives, but also the general application of telecommunication services is essential for the achievement of a certain standard of performance using the e-government system (Al-Shehry, 2008).

VII) IT Standards: meaning the specifications for hardware and software, for helping people to manage and use technology must be applied. A single integrated gateway model for the adoption of e-government is expected to provide access to its information and services, which in turn requires the government public sectors to share information, knowledge, participate positively, and collaborate to provide efficient e-government services (Al-Shehry, 2008).

In Egypt Zakaria and Gebba (2014: 18-21) stated that, “the challenges faced by Egypt's government are the lack of an e-signature mechanism, security and privacy concerns, e-payment transaction challenges (low penetration of credit cards, lack of payment tools for simple citizens), inconvenience of delivery mechanisms and its effects on reputation of e-services quality, computer illiteracy and a low internet penetration rate, a lack of citizens’ awareness, participation and study, reluctance and mistrust of automation, inflexibility to modify workflows, a lack of integration and information sharing among governmental bodies, the lack of unified standards and the overlap among service providers.” Zeied et *al.* (2017: 78) stated that, “the e-government vision in Egypt is focused on being citizen centred and on providing citizen centric presentations of services. Egypt made strides in its e-government project and showed remarkable improvement in e-participation. However, the country is still lagging far behind other Arab countries, particularly the Gulf countries that launched their e-government programmes recently.”

2.5.7 Libya

Alatrash, Albskri and Boskovic (2016: 343-345) stated that, “Libya is a developing country and is in the process of establishing quality e-government services to improve its functioning, improve the productivity and efficiency of government agencies and facilitate the complicated procedures for its population. Civil war is still going on in Libya. Studying the social aspect of Libya, the authors noticed that there is a lack of IT experts, despite the high rate of literacy that puts Libya in eighteenth place on the world’s literacy list. Libya recruit experts from other countries to do these demanding jobs.” Alatrash et *al.* (2016: 345) further stated that, “due to the lack of IT skills, there is no competitive environment and therefore the need for knowledge to be continuously improved is at a low level. Political weakness is shown by the low interest level regarding establishing good e-government practice, which results in the poor legislation framework on which the IT sector has to try and build IT expertise. Investment in e-government is discouraged so there is little interest in developing the sector and re-building IT infrastructure.”

Alatrash et *al.* (2016: 345) stated that, “another problem is the resistance to change in the public sector due to the fear of job losses because e-government brings considerable savings, and among other things greatly reduces the need to have many employees.” Alatrash et *al.* (2016:

345-346) stated that, “the UNDP is a partner with Libyan government in its e-government strategy, in an effort to modernise Libyan government systems and offer citizens access to government services by means of technology advancement. The UNDP is supporting the e-government team in setting up a Project Management Office, and assisting with assessments and coordination of three-line ministries, namely, Industry, Health and Education. Alatrash et *al*. (2016: 346) stated that, “the UNDP will assist in transferring knowledge to Libyan stakeholders with lessons learnt from other international countries. This is the beginning of a partnership with the Libyan government in an effort to both modernise and deliver services to citizens in a more effective way.”

Alatrash et *al*. (2016: 346) stated that, “Libya would be developing a detailed strategic plan to ensure that the process of developing a stable and efficient e-government system would be as simple and easy as possible. This is particularly important for places that are far from big cities and for areas that are able to build strong and well-organised local governing. The main goal of e-government services is to provide better services to the people, to reduce bureaucracy, time, money and unnecessary efforts from the Libyan people.” Using e-government techniques every day is most important for education, health care, civil and public services, as well as in the private sector (International Labour Office Geneva, 2008 as cited in Alatrash et al*.,* 2016: 346). The researcher sought to find information on e-government implementation in developing countries to determine if they experience similar challenges as seen in South Africa and to see how the countries are handling the challenges. This information could assist the South African public sector departments to avoid some of the e-government implementation challenges and also to learn how countries with similar challenges are implementing e-government.

2.6 Types of e-government

As discussed below, there are several partners that can go hand in hand with e-government. The e-government initiatives selected for this study are not only about government serving the citizens but also about government facilitating government. The SARS e-filing system and the Smart ID card system should provide an efficient and effective service to citizens. The NPR is a government-to-government service. The information from the NPR is used by various other government departments such as Social Development and the Department of Health to provide social grants to people and to be informed on births and deaths.

Nkwe (2012: 40) stated that, “government to citizens services enable citizens to interact with government, which is the primary goal of e-government. Government to citizens services helps to facilitate transactions, such as payment of taxes, renewing licences and applying for certain benefits, that are less time consuming and easy to use. Meiyanti et *al.,* (2018) adds that it provides public services online, using the electronic service for delivering information and communication to citizens. Ndou (2004: 5) asserted that, “government to citizen services deal with the relationship between government and citizens. E-government allows government agencies to talk, listen, relate and continuously communicate with its citizens, thereby ensuring accountability, democracy and improvements to public services. A wide variety of interactions can be developed, ranging from the delivery of services and the provision of welfare and health benefits to regulatory and compliance-oriented licensing (Riley, 2001).” Government to citizens services allow citizens to access government information and services instantly and conveniently, which means even from the comfort of their own home, by the use of multiple channels (web, TV, mobile phone or wireless devices). It also enables and supports their participation in local community life (Ndou, 2004).

Government to Business (G2B) services includes both the procurement of goods and services by the government as well as the sale of surplus government goods to the public online. (Mutula, 2012). With government to business services, some of the e-transactions that are encouraged are e-procurement, the creation of an electronic marketplace for government purchases, and the implementation of government procurement tenders electronically (Meiyanti et *al.,* 2018). Ndou (2004: 5) explained that, “government to business services consists of electronic interactions between government agencies and private businesses. It allows e-transaction initiatives such as e-procurement and the development of an electronic marketplace for government (Fang, 2002).” Ndou (2004: 5) further explained that, “companies everywhere are conducting business-to-business e-commerce in order to lower their costs and improve inventory control. The advantage of doing online transactions with government is that it reduces red tape and simplifies regulatory processes, which helps businesses to become more competitive. The delivery of integrated, single-source public services create opportunities for businesses and government to partner together for establishing a web presence faster and cheaper.”

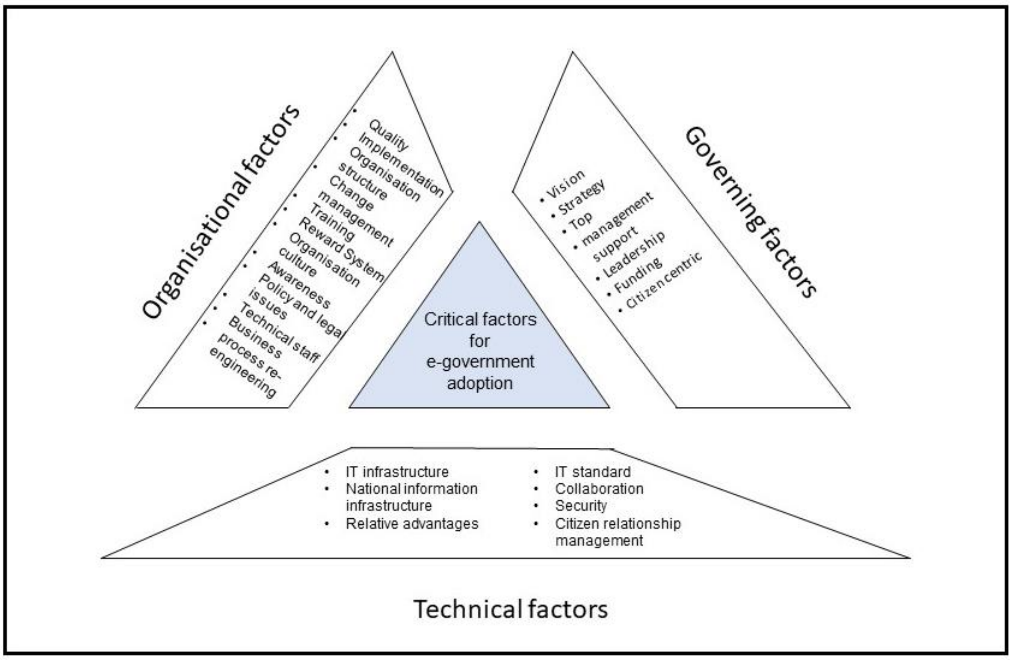
Government-to-government (G2G) services refer to e-government sharing data and conducting electronic exchanges between various governmental agencies (Monga, 2008). The NPR is an e-government initiative which shares data with other government departments. Government departments tend to work in silos; however, government-to-government services encourage government departments to work with each other online to increase efficiency and effectiveness, including internal exchange of information and commodities (Meiyanti et *al.,* 2018). Ndou (2004: 5) indicated that, “G2G refers to the relationship between governmental organisations, for example national, regional and local governmental organisations, or with other foreign government organisations.”

Government cannot work in isolation and depend on other spheres of government within the state to provide services effectively and allocate responsibilities (Riley, 2001). Ndou (2004: 5) further indicated that, “in order to achieve a single access point, partnership and cooperation among different governmental departments and agencies is compulsory. Online communication and collaboration permit government departments and agencies to share information from repositories, resources, pool skills and capabilities, thus enhancing the efficacy of processes.” Government to Employee (G2E) services: There are initiatives in place to make administrative functions simpler for governmental employees such as e-career applications and using a paperless system in e-office (Meiyanti et *al.,* 2018). Ndou (2004: 6) stated that, “G2E refers to the relationship between government and its employees. G2E is an effective way to provide e-learning, encourages unity amongst employees and stimulates learning and sharing of knowledge with each other. It allows employees to be able to access relevant information regarding compensation and benefit policies and training and learning opportunities. G2E refers also to strategic and tactical mechanisms for encouraging the implementation of government goals and programmes as well as human resource management, budgeting and accounting (Riley, 2001).”

2.7 Theoretical framework

The framework for this research is based upon the model developed by Altameem et *al.* (2006). Altameem et *al.* (2006: 2) stated that, “they had identified critical success factors from different initiatives around the world that have influenced the success or failure of e-government adoption. These factors were categorised into three groups, namely, governing factors, technical factors, and organisational factors.” Each of these three factors have sub-factors which can be seen in figure 2.1. The researcher decided to use only eight of the twenty-four sub-factors for this study which are; strategy, top management support, change management, funding, awareness, citizen centric, technical staff and leadership. Each of these factors will be explained in more detail after the figure.

The model by Altameem et *al*. (2006) was not made for a developing country and did not consider the environmental factors which included, politics, culture, economy and the lack of infrastructure. Brown and Thompson (2011) pointed at inadequate infrastructure, poor financial resources and lack of technological adaptation in a developing country. Abdalla (2012) stated that some suggest that the gap between the context and the economic, political or technical goals and values could easily lead to failure in developing countries. Developing countries lack a model to follow in order to adopt the best developed e-government solution and identify the challenges and factors that influence the implementation process. A number of researchers emphasised that developing countries should work for the interaction of financial, technical, managerial and social factors in delivering government transformation by means of e-government (Ndou, 2004; Grant & Chau, 2005; Brown & Thompson, 2011). Keeping this in mind the researcher decided to select eight factors from the Altameem et *al.* (2006) model, ensuring that there was an interaction of financial, technical, managerial and social factors, which are also applicable to the South African context. Some of the organisational sub-factors found in Altameem et *al*. (2006) are not applicable to this study; for example, the reward system. There are not enough funds in the South African public sector to reward employees. Quality can be assessed more from a user perspective, which this research is not focusing on and policies and legal issues apply to all e-government initiatives and do not vary from one initiative to another. South Africa is a developing country and may not be at the level of developed countries in terms of the technical sub-factors. Therefore, the researcher decided to exclude these from the study. As South Africa is moving towards the 4IR and does not have the infrastructure and resources that developed countries have, the researcher decided to exclude the other sixteen factors from the Altameem et *al.* (2006) model which can be seen in figure 2.1. The eight factors that were chosen from Altameem et *al.* (2006) are essential for any successful project. therefore, the researcher decided to determine whether the eight factors were found in the implementation of the selected e-government initiatives.



Source: Altameem, Zairi and Alshawi, 2006

Figure 2.1: Critical factors for e-government adoption

2.7.1 Clear vision and strategy for e-government initiative

Altameem et *al.* (2006: 2) stated that, “for any change there must be a comprehensive strategy to encourage the organisation towards the achievement of a goal. Strategy is an important factor for e-government implementation. For example, Singapore's success in providing public services online can be attributed to the strategies they adopted." Apleni and Smuts (2020: 20) indicated that, "successful e-government implementation required a clear vision and a detailed strategy that led and supported the entire e-government implementation process and concentrated on the achievement of specific and well-articulated e-government goals."

Ndou (2004: 15) indicated that, "the development of a relevant and context tailored strategy is one of the challenges facing e-government implementation. The fundamental ingredient of any project or initiative is a careful, analytical and dynamic strategy. Developing a strategy seems arduous and requires many aspects and processes to be considered, such as a holistic vision, long term focus and objectives. Many public institutions concentrate on the simple transfer of their information and services online without taking into consideration the re-engineering process needed to realise the full benefits." Ndou (2004: 15) went on to say that, "government must have a clear strategy to overcome the barriers to change. This means that a vision of e-government suggests providing better access to information as well as equal services and procedures for public and businesses. Even though the intention of e-government is to improve internal government processes, the end goal should be to improve services to citizens."

2.7.2 Top management support on all stages of the e-government initiative

Altameem et *al.,* (2006: 2) stated that, "strong support by top management is critical throughout the implementation of the project. Top management needs to make it known in public that the project being performed is a top priority for government." Al-Naimat et *al.,* 2013: (395-396) indicate that the support also encourages the team to work towards creating new ideas to expediate processes and to face obstacles such as resistance to change. Top management support and commitment is vital throughout the entire e-government implementation life cycle, in order to provide and allocate sufficient resources (Apleni and Smuts, 2020). Support from top management includes their undertaking to make sure that the e-government systems and applications are adopted. It is therefore critical for the adoption and implementation of e-government (Akbulut, 2003).

2.7.3 Effective change management

In any e-government initiative, there must be some degree of change management as it is an important part of implementation (Altameem et *al.,* 2006). AL-Naima et *al.* (2013: 396) stated that, "resistance to change by older users is always a concern." It is important that users are made aware of and understand the benefits of the new procedures to implement e-government. The reasons for resistance to change are the fear of uncertainty that the new technology would bring and its impact on their lives. Ndou (2004: 14) indicates that change management must take place to address the new method of working and new ways of processing and performing tasks. E-government correctly designed not only save costs and improves service quality. It also transforms and reinvents government processes and functions. Change management can be divided into two sub-concepts namely, the approach to change management and the management of resistance to change. The change management approach includes the change management procedures that takes place within organisations. Ndou (2004: 14) further indicated that employee resistance to change is still a major challenge to successful change. In general, employees fear change as they fear the unknown and when it involves ICT applications, they believe that ICT will replace them and will lead to job losses. It is also difficult for employees to turn off traditional methods of working in a short space of time and learn new ones. To effectively manage resistance, means ensuring that employees are incentivised to change their behaviour and commit to learning the new way of doing things and developing well-structured plans that encourage employee participation throughout all stages of the change process.

2.7.4 Adequate funding for implementation and maintenance

Another critical success factor by Altameem et *al.* (2006) is funding, which is of critical importance as it is the glue that holds the building, collections and staff together and allows for the attainment of goals. E-government initiatives cannot happen without funding. Funding is a requirement for starting an e-government initiative. Furthermore, it is a requirement for the continuation of e-government implementation. In a developing country like South Africa, funds are limited. Therefore, it is essential that e-government adoption is successful. Heeks (2001) and Ho (2002) both pointed out that one of the main challenges to the adoption and implementation of e-government is inadequate funding. In order for the implementation of e-government to take place it is essential to have adequate funds. A major challenge with e-government is that it is costly to implement. Government, especially in developing countries has a limited budget which is needed is provide services to the increasing population therefore government is reluctant to spend money on an e-government project which might not even be successful (OECD, 2003). The implementation of e-government involves expenditure on systems hardware and maintenance, software, training and development, which are expensive and discourage agencies and governments from using these technologies (Alshehri & Drew, 2010).

2.7.5 Active awareness campaigns

Awareness in e-government refers to communicating e-government initiatives to the appropriate stakeholders and individuals informing them of how they can benefit from using e-government (Altameem et *al.*, 2006). Apleni and Smuts (2020: 19) defined awareness in e-government as the process of proactively and rigorously marketing the benefits of e-government services to citizens in both rural and urban areas. Apleni and Smuts (2020) confirmed the information provided by Al-Naimat, et *al.* (2013: 395) that by raising awareness of e-government early on in the programme, resistance may be avoided, and growth and adoption may be fostered.

2.7.6 Citizen centric approach to e-government

Altameem et *al.* (2006) stated that citizen centric operation is ensuring that e-government services are designed to help citizens get in, find the information that they need or transact their business, and then get out as quickly and efficiently as possible. The aim of e-government activities is to ensure efficiency in creating and delivering services to citizens. Malik, Gupta and Dhillon (2014) defined citizen-centricity as looking at service delivery though the eyes of the citizens rather than operational or other requirements of the government system. It is expected that a citizen centric approach will enable government, to achieve important efficiency gains and improve service delivery levels to increase the usage of online services. This will, in turn improve sustainability and encourage investment in e-governance, improve citizen satisfaction with government services and improve their quality of life. Such initiatives deal particularly with the relationship between government and citizens.

2.7.7 Adequate technical staff for e-government implementation and maintenance

Altameem et *al.* (2006) stated that past research indicated that an e-government innovation with significant complexity requires improved technical skills and needs greater implementation and operational efforts to increase its chances of adoption. E-government adoption requires a number of technical staff to help implement it. It is a known factor that governments globally suffer from a lack of technical staff. Technical staff are essential in e-government implementation. Ndou (2004: 17) pointed out that the successful e-government initiatives are to a large extent reliant on human skills and capabilities. Education and training programmes must be considered as priority actions. Staff need to be trained on how to handle new processes and activities. They have to be incentivised (not necessarily monetarily) to prevent a brain drain of skilled people. Technical staff need to feel part of the organisation by engaging with the decision-making process. Community members should also be provided with basic training, so they are able to use the new facilities for accessing electronic information and services. Moon (2002) concluded that, for e-government practices to improve, public sector organisations need to move towards a higher level of e-government development, which will require a greater number of highly trained technical staff.

2.8.8 Strong leadership support

Altameem et *al.* (2006) state that strong leadership is an important precondition upon which e-government success hinges. The adoption of e-government requires a leader who can put it onto the agenda, set it within a broader reform agenda, and who can make it happen. Political support will ensure that adequate funding and human resources are available for the e-government initiative and that the supporting legislation is in place (Altaee, 2017). The public sector presents unique challenges for leadership. Ndou (2004: 16) mentioned that leadership makes things happen and that a strong leader is required to drive the process and provide direction. e-government is not a straightforward process it is highly complex, costly and has risks and challenges which makes public organisations resistant to the initiation of change. A strong leader who is able to understand the real costs and benefits of the project, to motivate, influence, include and support other organisations and institutions, is required. Leadership is necessary during all phases of the e-government before, during and after project implementation. Before the start of the project, leadership must explain the idea of the e-government initiative, the model and create awareness by publicly and openly making it a priority. During the project, leadership is required to manage change and support the project by making the necessary resources available.

After the project, leadership is required to pledge the required flexibility and adaptability of the initiative. According to McClure, (2001) top leadership participation and clear lines of accountability for making management improvements are important for overcoming organisations' natural resistance to change, providing the resources needed to improve management, and for building and maintaining the organisation-wide commitment to new ways of doing government work. Leadership provides direction and resources and ensures that activities are done according to timeframes. It spearheads the process and is crucial for e-government. Leadership must make sure that resources are provided, not only for implementation but also for maintenance and must ensure that there is collaboration among the stakeholders (Seifert & Bonham, 2003).

2.8 Summary of the sub-factors chosen for this study

From twenty-four sub-factors developed by Altameem et *al.* (2006), the following eight sub-factors were selected for this study.

Table 2.1: Sub-factors selected for this study

No.	Sub-factor	Reason why it was selected for this study
1.	Clear vision and strategy for e-government initiative	There must be a clear and detailed strategic plan on how to implement an e-government initiative.
2.	Top management support throughout the life cycle of the e-government initiative	Top management support is essential for the success of the e-government initiative as it assists with the approval and required resources.
3.	Effective change management	There must be change management to assist people to move from the old way of doing things to the new way. They must be made aware of the benefits of the e-government initiative.
4.	Adequate funding for implementation and maintenance	Funding is a priority for any e-government initiative; without money nothing can be done.
5.	Active awareness campaigns	People must be made aware of the e-government initiative so that it can be used; otherwise, an e-government initiative might be made available with no users if they are not aware of it.
6.	A Citizen centric approach to e-government	An e-government initiative must consider the needs of the user to make it easy, simple and convenient for them to want to use it.
7.	Adequate technical staff for e-government implementation and maintenance	An e-government initiative must have adequate technical staff to develop, implement and maintain it, otherwise it can fall apart if there aren't capable technical staff to maintain it.
8.	Strong leadership support	Strong leadership support is required to ensure that the e-government initiative is a government priority and receives buy-in from senior government officials and politicians.

2.9 Other research on e-government critical success factors

E-government is improving the way services are delivered to the citizens globally, which is attracting the attention of researchers. A number of researchers have conducted studies on critical success factors for e-government adoption due to its high failure rate. A study conducted by Soufiane and Ibraham, (2018) aimed to determine the association between technological, organisational, and environmental factors on e-government, As Algeria is a developing country the researchers developed a framework that contributes to the successful implementation of e-government adoption. The technological factors required are IT infrastructure and security, the organisational factors required are top management support and organisation culture and the environmental factors required are rules and regulations and awareness. It is not as comprehensive as the framework developed by Altameem et al (2006) but does include all their factors.

A study conducted by Jonathan (2020) who is from Sweden, used previous research and interviewed twelve leaders from public organisations to develop a list of factors that could contribute to the successful adoption of e-government. Jonathan (2020: 232) identified various factors that could lead to the effective implementation of digital transformation in the public sector. The factors were group into three categories which were organisational and managerial factors and included change management, organisational culture, business-IT alignment, leadership engagement and skills development programme. The next category was on information technology factors which included data security, IT-architecture, interoperability and data driven agility. The third factor is environmental which includes funding, political stability, citizen participation, regulatory frameworks and telecommunications service quality. The findings from this study were consistent with the findings from Altameem et al. (2006).

A study on, “the critical success factors for e-government implementation in Jordan” was conducted by AL-Naimat, Abdullah and Ahmad (2013). The researchers indicate that countries world-wide are implementing e-government initiatives. Apart from developing countries experiencing challenges even developed countries are experiencing challenges with the implementation of e-government. The aim of the study was to identify the critical success factors for e-government implementation to spur growth and success in Jordan. Jordan is a developing country in the middle east. Al-Naimat et al (2013: 395) identified three main factors that determine the success of e-government implementation in Jordan, which include the organization factors, technology factors and people factors. Among these three main factors, there are 10 critical success factors identified which are funding, IT infrastructure, policy and legal issues, awareness, top management support including political support, user computer efficacy, reward system, resistance to change, vision and strategy and training. These factors confirm the framework on critical success factors developed by Altameem et. al (2006).

Studies conducted by a number of researchers identified the same or similar factors as that of Altameem *et al.* the only difference is that there are more factors in Altameem *et al.* For the purpose of this research only eight factors were selected. It is essential that e-government projects are monitored and evaluated to determine if it achieved its intended purpose, which the next section will focus on.

2.10 Monitoring and evaluation

Farelo and Morris (2006) asked how government will know if it fails or succeeds without an integrated monitoring and evaluation system? Government has demonstrated its understanding between outcomes and cost-benefits, but formal monitoring and evaluation procedures need to be put in place. Emphasis should be placed on the impact on service delivery and the customer.

There are issues regarding implementation of the public service regulation in terms of ICT which are being addressed with further amendments to the Act; requiring reporting mechanism to be put in place to report back on ICT spending and project implementation to the Public Service Parliamentary Committee.

2.11 Knowledge gap

There is a rich body of knowledge on the successes and challenges of e-government systems, some of the studies include Gil-García and Pardo (2005), Elkadi, (2013), Napitupulu (2014) Singh & Travica (2018). However, based on past studies, there is little information on how the eight critical success factors that are being used for this study have contributed to the success or failure of e-government initiatives in South Africa. Studies have been conducted on e-government and on the critical success factors in South Africa. Some were conducted by Masinde and Mkhondo (2019), whose study focused on the critical success factors of e-government implementation in local government. Apleni and Smuts (2020), aimed to define an implementation framework for e-government in developing countries. It did not focus on any particular e-government initiative but rather on a government department.

Mutula and Mostert (2010) referred to the successes and challenges of e-government in South Africa. Mpinganjira (2013) revealed the lessons learnt from the SARS e-filing system. However, the researcher for this study used eight critical success factors that were identified by a number of researchers to find out how they were used and to what extent they contributed to the success of the SARS e-filing system. These eight factors relate directly to the adoption of the e-government initiative by the host department. Most of the organisational and technical factors from the Altameem et *al.* (2006) model is not relevant for this study. The aim of this research is to fill a gap in the literature.

2.12 Chapter Summary

This chapter reviewed past studies on e-government, its benefits and challenges, and on how it is implemented in developed countries as well as developing countries. Some countries that were far behind with e-government have made significant progress in the last few years while other countries that were doing well have fallen behind as compared to their initial progress. Technology is changing at a very rapid speed and countries globally need to stay abreast with the changes. However, it is costly to develop and implement e-government systems and not all countries have been successful. The framework that will be used to guide this research is a model developed for Altameem et *al.* (2006). The model has twenty-four factors. However, the researcher felt that not all the factors were applicable to a developing country like South Africa;

therefore, eight factors were selected from this model for this research. The eight factors are technical staff, change management, awareness, strategy, top management, leadership, citizen centric operation and funding. The next chapter will focus on the methodology for this research; on how the data will be collected and presented to answer the research questions as indicated in chapter one.

Chapter Three - Research Methodology

3. Introduction

A qualitative approach was followed in this research. Data was obtained from desktop research and interviews. The researcher selected multiple case studies for this research as the goal was to find out how many of the critical success factors were utilised in the various e-government initiatives and to what extent they were used. Three e-government initiatives were selected, based on purposive sampling. The two more successful initiatives are the SARSs e-filing system and the Smart ID card system while the less successful e-government initiative is the NPR. The DHA has both a highly successful e-government initiative and a system that is considered to be less successful which will be investigated in this research. The two successful e-government initiatives have been cited by a number of researchers, such as Naidoo (2012), Mpinganjira (2013) and Jankeeparsad, Jankeeparsad and Nienaber (2016). Each of the projects that that were selected will be briefly explained in the next section. The researcher discusses the data collection method that was used for this research which were through interviews. The method of data analysis is also explained, followed by how the data were presented, the ethical manner in which the data were collected and lastly, everything is summed up in the conclusion.

3.1 Case Selection

Three e-government initiatives were selected for this study, two cases are relative successes, while one case is considered less successful. The general overview of the selected projects is explained in table 3.1.

Table 3.1: General overview of selected e-government initiatives

<table>
<tr><th colspan="2">Government Department/Organisation</th><th>South African Revenue Service</th><th>Department of Home Affairs</th></tr>
<tr><td rowspan="2">E-government Initiatives</td><td>Success
This can be defined as the achievement of the desired results (Cambridge Dictionary)</td><td>Case 1:
SARS e-filing</td><td>Case 2:
Smart ID card system</td></tr>
<tr><td>Less Successful
This can be defined as not achieving the hoped-for result (Cambridge Dictionary)</td><td></td><td>Case 3: National Population Register</td></tr>
</table>

3.1.1 Case 1: SARS e-filing system

The Department of Communications indicates that the SARS introduced its electronic filing initiative in 2001, in accordance with the government's broader e-government strategy in the public service. The main aim of an e-Filing system is to facilitate the electronic submission of tax returns and payments by taxpayers and tax practitioners. This free service allows taxpayers, tax practitioners and businesses to register free of charge and submit returns and declarations, make payments and perform a number of other interactions with SARS in a secure online environment (SARS e-filing, 2013). SARS has been expanding the range of services offered through e-filing over the years. This is aimed at providing as many services as possible online, so that the need to visit SARS offices can be significantly reduced (Mpinganjira, 2013). Cloete (2012) stated that the electronic filing of tax returns which SARS implemented is probably the most successful case of a transactional e-government service. This was supported by Jankeeparsad et *al.* (2016). Naidoo, Singh and Levin (2011) revealed that there has been an increase in SARS revenue by over a R100 billion since the inception of its e-government initiatives in 2000 and 2001. SARS currently receives between 65 000 and 75 000 electronic payments from taxpayers and traders every month. Ultimately, the SARS revenue take has increased considerably in the last decade, benefiting the state treasury and ultimately its citizens, a testament to the benefits conferred by effective roll-out and implementation of e-government initiatives.

Oberholzer (2019) indicated that Judge Robert Nugent's inquiry heard that SARS' digital infrastructure was found wanting. A prediction was made that unless urgent attention was given, the e-filing system could collapse by 2020. It was evident that the IT department, under the leadership of the controversial Mmamathe Makhekhe-Mokhuane, lacked leadership and strategic direction. The IT executive was placed on precautionary suspension for serious allegations of misconduct, and she later resigned (Timeslive, 2019). This and former Commissioner Tom Moyane's decision to halt the modernisation strategy left the IT infrastructure in chaos for four-and-a-half years. Moyane was fired after recommendations by the Nugent inquiry, which found him not fit to hold office and held him largely responsible for the mess the tax agency found itself in (Dlamini and Quintal, 2019). Businesstech, (2022) stated that the Zondo Commission said that 'The only feasible conclusion is that the organisation was deliberately captured, and that President Zuma and Mr Moyane played critical roles in the capture of SARS and in dismantling it during Mr Moyane's term as Commissioner. One of the ways used by Moyane to weaken the governance at SARS was to halt the sophisticated IT systems. The current situation at SARS shows the importance of strong and committed leadership in e-government.

3.1.2 Case 2: Smart ID card system

The South African Government stated that the ID card document was launched in July 2013 by the DHA. This replaced the previous green bar-coded ID documents. The new ID cards have better security features and are supposed to be extremely difficult to forge. The smartcard will cut down on the fraudulent use of fake or stolen IDs, which is a major concern in South Africa. South Africans can apply for their Smart ID card system by using the DHA online system This has eliminated waiting in long queues and has saved time and money. At one stage the average turnaround time to obtain an ID book was 140 days, this was later improved to 45 days (Department of Home Affairs, 2019). The average turnaround time for obtaining a Smart ID has been reduced to 14 days. In 2019, Home Affairs Deputy Minister Njabulo Nzuza stated that since the department started digitising the ID applications process, some 13 million Smart ID card systems have been issued.

In 2018, the DHA reported that 731 inspectorate officials undertook 24 266 deportations. They completed 2 880 undesirable appeals within 28 days and conducted 221 inspections at business and hospitality industries, where it was suspected that undocumented nationals were employed (South African Government News Agency, 2019). According to the Department of Home Affairs Annual Report 2019/20 the capacity to deliver the mandate adequately was hampered by the instability of the network. During the 2019/20 financial year, system downtime and instability caused the department to miss the target for the Smart ID card systems by 183 456. The department did not have many options for solving this problem as it can only source network services from the State Information Technology Agency (SITA). When there is system downtime, it means that citizens are turned away to come back another day which is an inconvenience for them. The Department of Home Affairs Annual Report 2021/22 state that for the period under review there were additional mobile units purchased to service high volume offices and offices under pressure. The mobile units are able to reach people living in rural or remote areas who can apply for their Smart ID card, making it convenient and easy for them. The World Bank (2019) praised the South African Smart ID card system as it incorporates state of the art security technology to reduce the incidence of forgeries and enhance trust in the system. The World Bank (2017) revealed that the card has a range of security features such as card number, multiple layer image containing two elements (nationality and ID number), line ID bar code (code 39). The card also has a PDF417 type bar code, a photograph of the cardholder on both sides of the card, optical variable ink, and an invisible design printed that can be viewed only when exposed to ultraviolet light for security. The Department of Home Affairs Strategic Plan 2020-2025 state that there are a number of benefits with the Smart ID card which are reduced fraud, a single card that can store all types of service licences e.g. driver's licence and gun licence, it is a biometric enabled smart card which provides instant verification of identity.

3.1.3 Case 3: The National Population Register

According to the Department of Home Affairs (2020), in 1982 the Department established the NPR to enable it to store biometric data (fingerprints and face image) and other data specified in the Identification Act No. 68 of 1997. This register can be used to determine a person's ID, linked to biographical information and personal information for civil registrations, and compile and store particulars, as stipulated in the Identification Act No. 68 of 1997. Breckenridge (2014) explained that the NPR is a book containing the life-story of every individual whose name is recorded in that register. It contains the most important acts relating to such a person. In some cases, the life-story of individual is very short. In the case of a stillborn baby, it contains only entry and one page. In other cases, a long life-history is recorded. All those important facts regarding the life of every individual will be combined in this book and recorded under the name of a specific person, who can never change their ID. It is only when the last page of that book of life is written by an entry recording the death of such a person, that the book is closed and taken out of the gallery of the living and placed in the gallery of the dead.

The aim of the NPR was to speed up delivery services to the people and to have a single point of entry to a secure and credible NPR by registering all undocumented citizens (South African Government News Agency, 2010). It is a massive database recording the details of every living South African. Prior to the NPR the DHA used manual records which date back to the 1800s (Engelbrecht, 2007). The White Paper on Home Affairs (2019) stated that the integrity of the NPR depends on all the systems that feed into it, and it requires changes to be recorded. its data needs to be secure, accurate and reliable. However, the systems that are connected to the NPR are not adequately secure, are prone to errors and are not fully reliable. The systems are also not integrated. The Department of Home Affair's services, systems and information have a high value. Systemic and security weaknesses are exploited by opportunistic officials, or by officials who are recruited by local and transnational criminal syndicates. Serious consequences include large losses by the public and private sectors due to fraud, the imposition of visa restrictions by other countries and the loss of public confidence in the system and the organisation (Department of Home Affairs, 2019). Ranga and Flowerday (2007) pointed out that the South African DHA does not have an effective system and as a result, there are citizens who have the same ID numbers. This causes a problem when both recipients want to claim a grant and the system identifies them as one person. Even though this system is not a direct e-government service to the citizens, it is considered to be a G2G e-government service as it us used by the Departments of Health as they are involved in the notification of births, still birth and death that occur in health facilities. The International Development Research Centre (2021) found that for South Africans to access an education, children need a birth certificate, which enables them to go to school.

Matriculation students (those in their final year of high school) need an ID to write their final exams. Social services protect the poor and vulnerable using the Department of Social Development. The following ID documents are needed to use these services: a birth certificate to access child grants, ID documents to access old age and disability grants, and a death certificate to access a foster care grant. The Department of Home Affairs Strategic Plan for 2015-2020 stated that the modernisation programme will overhaul legacy systems, including the NPR. The current reliance on legacy and non-integrated systems makes it impossible to ensure security and improve turnaround times for processing IDs, births, death and marriage certificates, passports, visas and permits, asylum seeker documents, refugee IDs, citizenship certificates and permanent and temporary residence visas.

Bradshaw, Dorrington, Laubscher, Moultrie and Groenewald (2021) stated that in South Africa there was a major challenge with the statistics of people who died from COVID-19, especially if they did not have a valid South African ID number. There was an urgent need to be sure about how the pandemic was unfolding in the country, the extent of the impact, and the 'who, when and where things happened'. Without knowing the extent to which the beneficial effect of the youthful demographic structure of the population would counter the high prevalence of comorbidities and compromised immune systems, it was important to ensure that the country had a robust surveillance system. The authors further highlighted the urgent need to re-engineer the system of collecting and processing cause-of-death information, so that it can be accessed in a timely way, to inform public health actions (Bradshaw et *al.* 2021).

Razzano (2021) indicated that a chief failing of concern in relation to the current NPR is the manner in which it can contribute to exclusion. The current system of registration focuses on registration from birth but is associated with the status of parents, unintentionally resulting in children who are then required to be re-registered within the system at the age of five, with their biometrics in the form of fingerprints and iris and facial photographs also being taken (DHA, 2020; Singh, 2021). Those exclusions are specific to the identification bureaucratic process, but risks of exclusion also arise in relation to digital ID. This has real implications for ID management (Razzano, 2021). The Smart ID card system is believed to be a highly successful e-government initiative in South Africa, as citizens can get their Smart ID card system in three days compared to the delivery of the previous green ID book which took 54 days from the application date. It is also said to have a high level of security and advanced data-protection mechanisms (Magoma, 2019). The SARS e-filing system is also very successful and some of the benefits according to SARS (www.sarsefiling.co.za), are that it is a free, simple and secure way of interacting with SARS from the comfort and convenience of your home or office - thus no more waiting in queues, finding parking or worrying about office hours. Once registered, clients can submit returns, view their tax status and make payments to SARS electronically 24 hours a day. Clients are also given more time to make their submissions and payments. Drum (2014) wrote that Gigaba the then Minister of the Department of Home Affairs said that 'many people who do not deserve South African citizenship are able to bribe their way onto the NPR, and thereby pollute the register.' Gigaba also mentioned that there was a late registration backlog. These are some of the challenges faced by the NPR making it less successful than the Smart ID card system.

3.2 Data collection

Data collection is the method used to gather and measure information on variables of interest, in an established systematic fashion, which enables one to answer research questions, test hypotheses, and evaluate outcomes (Kabir, 2016). For this research, data collection was done by means of desk top research using three e-government initiatives. Information was collected from reports, online articles, and from the websites of the two organisations. Annexure one is included which lists all the documents that were used to source information for the three government initiatives. Sometimes the reports and information found in the organisation's website might be biased or might focus only on the positive aspects of the e-government initiatives. Therefore, the researcher also used online articles written by journalists. The information obtained from the desktop research was used to craft the interview questions. Due to COVID-19 related remote working conditions, online interviews were conducted with officials from SARS and DHA.

3.2.1 Profile of research participants

In South Africa there are several e-government initiatives. However, this research focused on two highly successful ones and one that is not as successful. The SARS e-filing system has been operational since 2008. Data for this research was collected from online interviews. The sample for this research comprised ten officials from each of the two concerned departments. The officials were selected from the IT Unit, the Business Unit, and the Project Management Office. The participants from SARS were all on the executive team, while the participants at Home Affairs ranged from the operational level to the senior management level. A total of thirteen officials participated in this research; eight from SARS and five from Home Affairs. The officials from Home Affairs were extremely reluctant to participate. Their reason was that they were too busy. It could be that, even though they worked with the initiative there was no dedication, or it could be that although they were prepared to work on the initiative, they were not very knowledgeable on the initiative content. The questions posed to the officials through interviews attempted to find out if the factors from the Altameem et *al.* (2006) model were present in the SARS e-filing system, the Smart ID card system and the NPR. The questions also sought to find out what made the successful different from the unsuccessful initiative. In total there were thirteen participants. To keep them anonymous, for the purpose of this research they were named respondent one to thirteen, in the following chapters.

3.2.2 Interviews

According to Creswell (1994), qualitative research follows a process that is left open to interviewees to respond freely and does not follow a structured approach. Interviews will be conducted with selected officials to collect data for this research. A semi-structured, open-ended interview guide was developed and provided to the participants before the actual interviews took place. The reason for that was that the participants would be prepared for the questions and would be able to give the most accurate answer to each question. It also saved time as the participants were aware of the questions.

The researcher applied to the two organisations to seek approval to conduct research on the three selected e-government initiatives. When the research application was approved by the organisation’s executive, the researcher was assisted by the coordinator in the research unit of the two organisations. The coordinator provided the researcher with the names and e-mail addresses of officials in the ICT Unit, the Business Unit and the Project Management Office as the researcher asked for participants who worked with the three e-government initiatives. The participants had to have a good understanding and experience of the e-government initiative to respond to the questions. The researcher e-mailed the participants from the DHA and the coordinator from SARS made online interview appointments with the participants and the researcher. The chosen participants from DHA were opposed to the interviews from the onset, one of the officials mentioned that they were far too busy and did not have time to be interviewed. The researcher decided to amend the Ethics Application form to include the online interview as well as to send the interview questions to the officials so that they could respond in their own time. The researcher e-mailed the participants several times (about five times) with the request for interviews or they had the option of completing the interview form in their own time. Unfortunately, most of the officials from DHA did not respond to the request.

After much pleading, five officials from the DHA and eight officials from SARS responded to participate in either the online interview or to fill in the interview form themselves at their own convenience and send back to the researcher. From the time of starting the process until getting the last response the process took about six months. The DHA were not as supportive of the research as the SARS participants. The SARS participants were mostly executives, including the head of digital channels. The participants that responded to the interview or the interview form were fair and unbiased. The DHA were assisted by SARS to develop the Smart ID card system so all the responses from the participants in both organisations finally collaborated with each other.

a) Sampling for interviews

Qualitative researchers use various sources to collect data, including people, written materials, audio-visual, and automated records. The selection of certain units constitutes the sample and sampling is the process of the selection thereof (Leedy & Ormrod, 2005). The main aim of sampling is to get a representation that is as close as possible to the target population. Purposive sampling was used for this study. Approximately ten officials responsible for the implementation of each e-government initiative were identified for the interviews. Due to most of the officials working from home as it took place during the COVID-19 period, the researcher decided to conduct online interviews. A schedule was drawn up, giving each participant half an hour to avoid too much time being taken from their work.

Emails were sent to the participants from the DHA as the coordinator only provided their work number, even though they were working from home. Numerous emails were sent to the identified participants, and when they did not respond, emails were sent to their senior managers to influence the officials to respond. The researcher even e-mailed the Chief Information Officer (CIO) from her own department to speak to the CIO from DHA. No response was received from either CIO. The researcher requested another senior staff member to speak to someone from DHA to influence the participants to respond, but unfortunately that did not work either. The response from DHA was very poor and only five officials participated in the research. The coordinator from SARS arranged online meetings with the eight participants. They were eager and enthusiastic about the research conducted on the SARS e-filing system. The participants selected were highly knowledgeable and had sufficient skills and expertise to comment on the three e-government initiatives. No one in the department was able to respond to the questions on the e-government initiatives.

b) Data analysis for interviews

The information collected from the interviews was analysed. The answers to the open-ended questions from the interviews were organised in a logical manner and categorised and filed according to the eight sub-factors listed in figure 1. The analysis sought to find common factors, patterns and differences from the interviews. The data collected from the interviews was analysed as it was collected, it was ongoing until all the interviews had been completed. Topics were then identified and codified to reduce it into groupings.

3.3 Interpretation of the data

Interpretation of data is the essence of research. Without inquiring into the intrinsic meaning of the data, no resolution of the research problem or its sub-problems is possible (Leedy & Ormrod, 2005). The data collected for this research was reported according to what was actually obtained from the interviews and questionnaires. The data for each project was interpreted and patterns and similarities across the three initiatives (two successful and one less successful) were used to draw conclusions and recommendations from.

3.4 Data presentation

A display is a structured assembly of information that leads to the drawing of conclusions and action (Miles & Huberman, 1994). Cloete (2009) stated that the usual mode of display for qualitative data is narrative text. Presenting the data is really about packaging the evidence collected for the research. The data for this study was presented visually so that the evidence could be made clear to the reader.

Presenting is about reducing and organising the data. The data is sorted by category, theme, or concept. in this study it was sorted according to themes from the interviews with officials from the selected national departments. The data was presented by means of extended text, quotations and phrases, which then led to the discussion of the results.

3.5 Ethical considerations

Leedy and Ormrod (2005) and Neuman (2011) stated that most ethical issues in research fall into four areas, namely, participants must be kept safe from harm, approval for the research must be obtained, confidentiality must be maintained, as well as trustworthiness with the researcher's colleagues. As an employee of the South African public sector, the researcher tried to be neutral and value free when it came to reporting. All information obtained was captured accurately and honestly. Approval to conduct the research was obtained from the Director-General in the DHA and the SARS Commissioner. This study applied all the key principles of ethics so as to ensure that no participant was harmed or distressed at any point in the research. A consent form was prepared in advance for each research participant, which was explained to them as well as the purpose of the research, before the interview commenced. The participant was informed that they could opt out at any time during the interview. The identities of all the interviewees remained anonymous and was not disclosed in this research. The findings obtained for this study will be reported in an ethical way without misrepresenting any information or misinforming anyone about the nature of the findings (Leedy & Ormrod, 2005). Due to COVID-19, interviews were done online through Microsoft Teams meetings. The researcher applied the same ethical principles as with face-to-face interviews. All information for this research was captured accurately and honestly. All due processes were strictly followed, as required by the University of Witwatersrand for obtaining an ethics clearance certificate. Only upon receiving the ethics clearance certificate did the researcher proceed with the interviews and the survey.

3.6 Chapter Summary

This chapter provided description of how the research was conducted. It was a qualitative study whereby two departments were purposefully selected based on their success with the implementation of the e-government system. It was found that while one department had a successful system, another would have a less successful system. It would also be interesting to find out how one system can be successful and another less successful in the same department. Ten officials were purposefully selected from the IT Unit, the Business Unit which requested the system and the Project Management Office who are responsible to perform oversight of the project from data taken from the two departments selected. The Departments were the SARS and the DHA, based in Pretoria. The theoretical framework for the research was guided by information developed by Altameem et *al.* (2006). The semi-structured, open-ended interview questions in the questionnaire was developed using that information. A major limitation of the study was that only be a viewpoint from government officials was presented which did not take other government stakeholders, i.e. the citizens into account. There were difficulties with getting willing participants from the DHA. Key ethical principles were observed at all times when collecting data from the participants; by making sure that they were not distressed or uncomfortable at any point during the interviews. Due to COVID-19 there were no contact sessions. The online platform used for the interviews was Microsoft Teams meetings. The chapter will focus on the research findings. The responses received from each of the participants from the two departments will be presented in the form of narrative text.

Chapter Four: Presentation of Findings

4. Introduction

This chapter presents the findings regarding the SARS e-filing system, the Smart ID card system, and the NPR. The responses received from the interviews with officials from SARSs and the DHA are discussed in this chapter. The sub-headings in this chapter were derived from the themes selected from the questionnaire and interview data. The questions from the interviews and the questionnaire which focused on the eight sub-factors which focused on the eight sub-factors from the Altameem et *al.* (2006) model was exactly the same. The themes were technical staff, change management, awareness, strategy, top management support, leadership, citizen centric and funding. Each section in this chapter focuses on selected themes. The purpose of this study was to find out if the eight factors described by Altameem et *al.* (2006) were found in the selected e-government initiatives and to discover what factors that were found in the more successful initiatives were not found in the less successful ones.

4.1 Responses for the SARS e-filing system

The responses from each of the participants are discussed in this section according to the eight factors. The first part of this chapter focuses on the SARS e-filing system. The second part focuses on the Smart ID card system and the last part focuses on the NPR. The responses are presented in the form of a narrative. The respondents were named one to seven. One respondent from SARS focused only on the modernisation project at DHA whereby SARS assisted the DHA.

This respondent was omitted from the SARS e-filing responses and added to the responses from the DHA. The researcher interviewed two respondents together; namely, respondents five and six. The first question asked about the technical staff responsible for the e-government initiative; what training the technical staff underwent, whether there were adequate technical staff when the system was implemented, whether there were adequate technical staff to fix problems when they arose and what the turnover rate was.

4.1.1 Technical staff

The researcher wanted to find out how the technical staff contributed to the success or failure of the e-government initiative. There were four questions for this section. The responses from the e-government initiative, the SARS e-filing system are discussed first. Seven participants from the SARSs responded to the questions. The first question was:

- **Was a service provider appointed to develop the SARS e-filing system?**

Respondent one agreed by saying yes, three service providers were appointed to develop and implement various components of the project solution. The first service provider delivered the front-end online platform. The second delivered the orchestration of the processes and data consumed by the e-government system and the third service provider developed and implemented a data processing engine.

Respondent two replied by saying that one service provider was appointed to develop reports for the complaints management system. The objective was to improve the quality of data management and the accuracy of all reports. Respondent three indicated that the SARS stakeholders sought the services of an external vendor to build the system, based on the specifications they had. Respondent four said, “SARS went through a tender process to recruit a service provider for the development of the e-filing system. In the year 2021, the e-filing system has been with SARS for probably about 12 to 15 years”. The respondent mentioned that they had mainly three service providers who worked with the e-filing solution, but every time SARS required additional functionality to be developed, they went out on tender and brought on board the most appropriate service provider. Usually, the three service providers that the organisation worked with would quote on the work that needed to be done.

Respondents five and six mentioned that everything was done by the service provider, although SARS brought in a particular service provider to develop the entire system. One was brought in specifically for e-filing and another one developed all the internal systems, the contact centre solution and all the processes running inside the system. Respondent seven said that it was a combination of both, but that they did have a service provider.

- **What training did the technical staff undergo?**

Respondent one indicated that some of the training sessions that officials went on included software development, solution design principles, solution architecture and network design training. Service providers were trained on the SARS software development life cycle and the project management methodologies adopted by SARS.

Respondent two said that the aim was to enhance the current reports; therefore, no training was needed as no new skills were required.

Respondent four mentioned that the first line maintenance and support was normally done by the internal staff and not really by the vendors. It was only when a deep change request was required that the organisation asked the service providers whether the internal team was able to do it or if they did not have the specific skill required - then a vendor would be called in. Usually, the fixes were done by the in-house team.

Respondents five and six indicated that an in-house support team was created. The organisation did not have an in-house development team. Development was purely done by the development partners, but there was an in-house team that did what was called 'second line support'. The problem was then diagnosed, followed by an investigation before it was given to the development partners.

Respondent seven said that the organisation had its own SARS Institute of learning. The design team provided them with the business specifications and they would then go and develop the material to train the staff. The respondent also agreed that training was given on e-filing.

- **Were there adequate technical staff when the system was implemented?**

All the respondents were unanimous in their answer, which was yes. Respondent one said, "the system was implemented through a formalised software release management process that brought together resources from various units in their different capacities within IT and business, to ensure a smooth transition to SARS production environment."

Respondent two mentioned that the service provider worked with the SARS internal teams. Respondent four indicated that there were adequate staff, but the system was run jointly with the vendors and they had a number of people who had the capability to build solutions into the system. It was a joint venture and the CIO at that time was really the brainchild behind the whole e-filing solution when the e-government initiative started off.

Respondents five and six said that the technical staff were adequate when the system was implemented. It was a mix of internal and external development partner collaboration, so it was adequate.

Respondent seven mentioned that there were adequate staff but they were always looking for additional resources. It was a mix of internal and external development partner collaboration which made it adequate. The business environment that the respondent supported, required production planning, so they always focused on taxpayer demand in order to make sure that they had sufficient resources to service their clients in case they needed support. Based on the production planning they had enough resources to service the clients' needs.

- **Are there adequate technical staff to fix problems when they arise with the system?**

Respondent one indicated as part of change management, a problem management process was mapped out to identify support units to respond to problems and also determine the capacity of support staff. Respondent two agreed that there are adequate technical staff to fix problems when they arise with the system and added that there is a process to log fixes.

Respondent three indicated that if the problem requires a higher level of expertise, then it gets escalated via change management. They have a project management approach in terms of fixing problems in the change windows. The respondent indicated that there are enough staff internally to deal with technical problems. If they cannot resolve the problem, they will escalate it.

Respondent four mentioned that the organisation can never have enough staff to fix problems when they arise on the technical side. All problems are logged through a change request and then logged as a project. Resources are allocated based on the priority of the change that is required and the urgency of the change that is needed. Staff members try and balance the resources to the problem at hand and decide whether they can fix it or get the vendor who did the original development to fix it.

Respondents five and six said that there are adequate technical staff to fix problems when they arise. When problems come up, they have a team that looks at it in-house and if necessary, it is handed over to the development partners if it is found to be on the system side.

Respondent seven mentioned that when a taxpayer calls SARS with a specific problem on the e-filing system, SARS has an incident management process that the staff follow. They make use of the remedy system, and the technical staff responds within a specific time, depending on the incident being logged as there are specific built in time periods for specific incidents. There is a 24-hour turnaround time for solving problems, but it also depends on how many taxpayers or how many users are impacted. If it affects a number of clients, obviously it will be regarded as an emergency and it will be dealt with within 24-hours. There is also a group that that deals with technical issues on WhatsApp. If there is an issue that have been identified through the channel, it is posted on the WhatsApp group which has a combination of both operations and the technical staff, and they respond immediately if it is important. They do not wait for the remedy incident report, because they want to stop users from contacting them on these issues, therefore they resolve them immediately.

- **What is the turnover rate with technical staff?**

Respondent two mentioned that the technical staff turnover rate remains high, as highly skilled personnel are continuously in demand in the labour market. Respondent one said that SARS had cushioned this impact by implementing mentorship and learnership programmes as feeders to balance the outflow. Respondent four indicated that the turnover rate over the last couple of months had been a bit high as people had left to go to other organisations. Respondent five and six mentioned that the turnover rate was low, SARS do not have staff leave that often. Respondent seven said that they had staff that lasted. The staff remained in the organisation for a long time, and they had not seen any major resignations in their environment. The respondent felt that the staff were well taken care of at SARS. He went on further to state that they doubted that there were staff who wanted to leave, they might not be happy with certain things, but the organisation still retained them in their employment.

4.1.2 Change management

- **Did change management take place with the frontline workers from the previous system that was used to the e-government system and how did it take place?**

Respondent one stated that change management took place with the frontline workers from the previous system and then adapted to the current system. The organisation embarked on internal communication, training, system testing and testing of reports.

- *Internal communication*

Continuous internal communication was maintained throughout the life of projects. Communication at the beginning of the project was aimed at preparing staff for the coming change and also to get support and engagement upfront.

- *Training*

Training programmes were developed. Impacted workers were identified and training sessions were conducted to prepare the frontline and other support staff for the change.

- *System testing*

During quality assurance and system testing, affected workers are brought in the process to gain hands-on experience and to assess the usability of the new system.

- *Respondent two added a comment on the Testing of reports*

The users of the system were informed of all the changes that were to be implemented in current reports. The users were also involved in testing the reports in the quality assurance phase.

Respondent four said that there is change management intervention with every change. For example, the biggest change that SARS normally saw happening regarding e-filing took place specifically around the employment tax filing season; particularly personal income tax, so in that release period the organisation usually has a change management team that works very closely with the rest of the project team. They join the project team and disclose what happens every week. They put together a change management intervention and plan, and they then assist line management to drive change management among the staff. That is important because there are change manage management elements as well as training elements that are brought into the change management plan.

That is to make sure that the staff understand the new changes, the type of communications that can go out, as well as the training that is given to staff on what the new changes will bring and how they will appear on the system or what the new functionality will be. They see the whole training part of it as part of change management, which shows that change management is very important in SARS. It is also important that it is done all the time and for system changes change management is the approach used, especially on personal income tax it is the biggest system change that happens in the organisation.

Respondent seven mentioned that SARS has awareness and change management campaigns in place. There is a change management team that shares upcoming events with the staff. Thereafter, the developers look at what training is required or what change initiatives need to be implemented. Some training does training does take place whether virtually or a in classroom and before the training they are briefed on what is coming so that when they go to the classroom environment, they are aware of the change that will be implemented.

SARS introduced changes last year on e-filing whereby they migrated e-filing from the old platform to the new platform. The team members had to select change agents within the division and the change agents had to drive certain initiatives to inform team members of what was coming. The one thing they developed was the 13-point plan. they looked at what changes were coming, and they agreed on thirteen enhancements and a plan was developed. Team members were briefed. They were given two hours to be briefed on certain changes that would be implemented and they also had the website supporting them on the SARS internal platform, where the information was loaded; and staff were advised to access the information so that before they attempt training, they were fully aware of what was coming. Training was designed to further implement the change that was coming. There is a change campaign unit that falls under operation effectiveness and production planning.

Respondent three stated that as far as they knew, there was no previous system. Everything was done manually. The taxpayer had to submit a little green book to SARS; put it in an A4 envelope and post it. That was the previous process. Certain enhancements to the e-filing system took place and among the enhancements were co-browsing or some other updates on the web page. Staff were trained on the changes in such a way that it was made exciting for them to assist with the process. They typically followed the process so that staff could see the benefit of making sure that the taxpayers adopted the use of the process.

Respondents five and six indicated that there was a change management team that focused on changes, both internally and externally. There was internal change, management, training on internal communications and on reaching new line management. The respondents agreed that there was quite a lot of change management. When SARS ran with this project, it was under the modernisation programme, so it was not only e-filing. SARS modernised all the systems, so they employed a dedicated change management team that performed all the change management activities. Not only did SARS move to e-filing, but they also moved to a new contact centre system. SARS basically changed the way the organisation worked, from processing paper to a paperless organisation.

Respondent seven stated that there was a customer experience team that ran surveys to connect to taxpayers or to system users to enable them to understand what they would like to see on the system just before the change could be implemented. Once that was done and the system development had taken place, there were also stakeholder engagements whereby specific client segments were briefed and taken through the enhancements or additional services that would be provided to them on the online channels. The organisation also conducted regular engagements with certain groups. For example, they had a controlling body for practitioners, with whom they had sessions wherein groups were taken through the changes that would be implemented and there was also interaction with their members within the various regions where the information was shared.

- **How is change management sustained?**

Respondent three stated that it was easier now because the staff had become used to some of the problems and issues concerning e-filing that made it easier for them to adapt and thus they do not have to ask each other for information. They did not have any other challenges in terms of changes that came with the system. Last year, the organisation introduced auto-assessment. Staff were given a counter screenshot which showed how the auto-assessments would look. As they understood the e-filing system, it was easy to obtain their buy-in to the enhancement of the system.

Respondent four said that change management was ongoing around the system development and change that was being implemented into the organisation. Even when slight changes were made information about it was sent to staff members. It was part of building the knowledge and keeping the knowledge alive. Notifications were also sent to staff members. In the contact centre specifically, there is a briefing session that happens whenever there are changes. The operations manager takes staff members in their specific clusters through the changes that have happened so that the staff members understand that there were changes made to the system. This is the new functionality, which is standard operating procedure. All of it can be seen on the systems, so it is a constant ongoing activity. It brings the whole change management into training, thence into knowledge enhancement which is all rolled into package that becomes part of the cycle of keeping skills alive.

Respondent four stated that the department provides the technology, solutions and delivery team with a group of people who are part of the testing team, and they are in the laboratory. they create a type of *super user*. The next step before they go live is to bring in a big user group who are the practitioners who belong to the recognising controlling bodies.

Groups of key representatives also come to test the solution with officials from the department. They also become part of the group of people who assist in sharing the change with the practitioner, so that change management is also done, together with the practitioners. They have to do a certain number of continuous professional development hours of learning about SARS and learning about the Act, as well as the systems that the department has in place at the moment. They are looking at introducing a training and development programme specifically for practitioners, administrative staff members. They take it further than just the organisation. They also look at how to educate the users. For information sessions for practitioners and users in large business the staff use webinars, the website, and there are tutorials, YouTube videos etc. The organisation communicates the change that the system is going through. The organisation takes change management seriously, so as to make it easier for our taxpayers to comply.

Respondents five and six mentioned that with every new change on any of the systems, such as e-filing, there is continuous automatic messaging going out. There is continuous communication happening. Training sessions are held after every major release. If there’s a significant change then the change management team comes into play. There is a change management unit at SARS.

Respondent seven said that there is a business communication process which facilitates change initiatives. The staff are kept informed of changes that the organisation calls tips or announcements. There are also website alerts; updates that are issued to them to inform them of what is happening in the e-filing space. If there is an enhancement on e-filing, then change management is implemented. If there are certain issues that have been identified in the system and there is a need to further enhance the system, the unit needs to supplement the knowledge that was shared in training, in the classroom environment through these types of business communications. Examples of that is the provision of design tips to tell the officials how to be careful of certain things that might be reported by clients and how to resolve them.

4.1.3 Awareness

- **What means were used to communicate the e-government service to the citizens?**

Respondent three stated that currently SARS makes use of radio ads, TV ads and a couple of years ago there were a number of TV advertisements on e-filing. There were also a couple of radio advertisements and all of them were not just on the popular radio stations but also on regional radio stations, to try and get information to the population in the outlying rural areas, not just the urban areas. SARS also has billboards, in Joburg on the major routes which are used particularly during filing season, between July and November which focus on e-filing, the use of the e-filing system and the benefits relating to it.

Respondents five and six stated that there were newspaper advertisements, staff handed out pamphlets, and the organisation had a presence at malls creating awareness on e-filing services. At one stage there were financial fillers on certain TV channels with some public figures. There were several different campaigns on different media formats and media channels to promote and create awareness on e-filing; and at that time, instead of having 90 days to have one's return assessed, it can now be done in three days.

Respondent seven mentioned that the SARS organisation always looked at different clients and tried to interact with them on different channels. The normal clients have access to the SARS internet, which has been refreshed. If a citizen logs in, they can see how much information the organisation has on their online channels, including guidelines, advising them on specific functionality on e-filing. What the team is currently also doing for other digital channels is tracking all the query types that are coming through the voice queue. If a user phones the call centre, they can speak to an agent who will listen to the caller and understand what challenges are being experienced by users on the online channels. Users are informed of the online channels so, while they are waiting for a minute or so SARS plays announcements advising the taxpayers of online channels. Respondent seven continued by saying that information is cascaded down to SARS's main clients and social media is also used. In the last two years SARS has ventured onto the social media platforms where they have loaded educational videos such as on a YouTube channel. SARS officials recently had a session with small and medium size enterprises (SMEs). If a user goes to the organisation's YouTube channel they will notice that the SARS had an engagement with the SMEs telling them about specific services that were identified as problematic for small businesses. There is also tax compliance data and information on tax clearance certificates. SARS takes them through how to go about applying for a tax clearance on e-filing.

- **Are these awareness programmes being sustained after the initial communication?**

Respondents one and two mentioned that the awareness programmes are maintained until a project is implemented. Users are also part of the project team and are involved in all project meetings. Respondent three stated that taxpayers who migrated from going to a branch to going on to a telephonic channel could call SARS and could expect the SARS official to help them with registration on e-filing. The official explains the e-filing process in terms of submitting a return, the outcome of that assessment and what their statement will look like. It is expected that in the following year those taxpayers will use the channel by themselves without needing to make a call. The idea is for SARS to invest time and effort now with migrated taxpayers so that the next year they do not need to call SARS again. It has been said that from the contact centre voice perspective the voice channel is seen as an awareness type of service; a creating, educating, promotion type channel.

The respondent described four examples of awareness being sustained: When a user does not have an income tax reference number, they need to register by going to the SARS e-filing website. The system will automatically issue the user with the tax registration number and an e-filing profile so the user can then create an e-file. The user can go to YouTube or to the website and will be able to watch a video on how to file his/her tax return. Previously the users used to get their return in a white envelope and would have to put in all the source codes from the IRP 5, insert the amount and attach all their supporting documents, together with their IRP 5. They had to put it all in an envelope and then drop it off at the post box.

Now with the e-filing system the information is pre-populated. SARS sources all the information about a user from a third-party data supplier. The organisation has already pre-populated almost 4 million returns. All the returns are pre- populated with all the information they have. The respondent gave an example, if users kept their records up to date, SARS would have the user's name, surname, ID number, work address, employer details, IRP 5 information and medical aid details. All the information on the user's IRP 5 will be pulled through and the e-filing return will be pre-populated. SARS will be able to see the user's salary, how much the user earns, what the pension and other deductions are; as well as If the user received a travel allowance, a bonus, etc. If the user belongs to a medical aid SARS gets the third-party data from all the medical aids and will then pre-populate the medical aid section. If the user wants to change any of that information they can do so, but they would have to provide supporting documents for the change. If the user contributed towards a retirement annuity, companies like Old Mutual, Liberty Life, Sanlam, Discovery, will provide SARS with third-party data. This information is pulled this through onto the user's return. If the user collects interest from money in their bank account SARS will get all that information from the bank which will pre-populated because interest is part of income.

SARS has made it easy for taxpayers, all they need to do is to verify the correctness of the information that was captured for them. The e-filing system has been made easy for the taxpayer, but they still call SARS for assistance. SARS has a system called, 'How do you e-file' which allows them to activate exactly what the user has on their e-filing profile and the system can then tell them how to resolve the problem. There are videos that can assist the taxpayer to complete their tax return.

According to respondents five and six, every year SARS has awareness programmes and communication around e-filing, especially during the filing season. Two years ago, it used to be published in the newspaper, there used to be newspaper pamphlets. A whole page pamphlet in the Sunday Times, nowadays it is publicised more on radio and billboards. SARS also uses social medial like Facebook and Twitter.

Respondent seven mentioned that SARS does not stop listening to their users. They listen to their complaints and try to improve the services. The intention within the traditional service channels is to migrate all the clients visiting the branches and those who were contacting the call centre. The aim is to push most of them to the online channels without having to call SARS and that's something that they do daily. The respondent indicated that they need to understand what type of issues the users are experiencing so they can make it easier for them to access the online channels. The respondent gave an example; "when a user phones a call centre and they speak to an agent, the agent will not drop the call without advising the user of the online channels available for the specific query the user called about" and that's how SARS tries to sustain the awareness programmes. If a user visits a branch, they will find a similar approach, where the SARS official will try and assist the user online first before having to use the core systems within the branch.'

4.1.4 Strategy

- **Was there a strategy for the implementation of the e-government project?**

Respondent two stated that there was a joint strategy with impacted government departments and also an internal SARS strategy for SARS's specific deliverables. There was a need to ensure that data that is shared is accurate enough to enable correct reporting. Respondent four stated that the strategy was written way back when SARS was probably taking about two years to get through the whole country's tax returns for personal income tax. Therefore, the CIO decided to automate which would create an electronic channel for people to submit their returns so there would no longer be piles of paper. SARS had masses of mailrooms and kilometres worth of storage areas where they had to file people's returns.

They took two approaches. The first was to digitise all taxpayers' information into the taxpayers online account and then also to create e-filing so people could submit their return electronically. That then allowed SARS to interface whatever information the taxpayer provide them with the third-party data that they had, and they then developed something called a risk engine. All the taxpayers are assessed through the risk engine, which means that SARS has artificial intelligence robotic process automation whereby the system assesses the taxpayer. It is not done by a human being. Only when there is an anomaly between what is available to SARS, supplied to them by the third-party data suppliers and what the taxpayer has submitted, do they then create what is called a first line verification, which is similar to an audit. They then pull those cases into a group which then goes through a physical audit whereby a human being will do the audit. Almost 100 percent of the returns go through the risk engine.

Respondent five and six indicated that the strategy was called the modernisation programme. It can be said that it was a strategy to move from a paper to a paperless system. It was an enormous change that enabled SARS to move away from a system that took 90 days to assess a tax return.

- **Were the relevant stakeholders involved in the development of the strategy?**

Respondent one indicated yes, internal strategy involved among other units responsible for legal policy, communication, stakeholder management and the business cluster responsible for the change. External strategy involved treasury, the Department of Forestry, Fisheries and Environment, and the Department of Mineral Resources and Energy. According to Respondent four said that when SARS did the redesign in 2018-2019 all the relevant stakeholders were involved in the redesign. SARS approached the public and discovered that 70 percent of the changes was based on what the taxpayers had to say; not on what SARS had to say. A number of customer surveys were done and there was a team of people who were dubbed usability experts and they then went out and got together with taxpayers, different stakeholder groups and so on to find out what they would like to see in the e-filing restructuring. 70 percent of the design that is in play today currently comes from the taxpayers themselves and all stakeholder groups. 20 percent came from the internal stakeholders within the SARS environment, the product and statement owners in SARS, the IT people and 10 percent came from just what was happening in the rest of the world, as researched. Questions were asked about how the other tax authorities evolved, what comprised their e-filing solution, what did technology allow, and so on. SARS put together something called the digital first strategy and the whole idea was to make sure that they positioned e-filing as a solution of choice; while at the same time expanding their offering, the mobile application is a derivative of e-filing but in a simpler form. SARS expanded over the years to become a little bit more advanced, but it still cannot do complex tax matters, such as for example; a farmer cannot enter all their rental income on a mobile application; nor can people who have more than one retirement annuity do so. The mobile application has a lot of benefits, but if a taxpayer needs their income tax reference number they can quickly go onto the mobile application and get it.

According to respondents five and six, there was quite a bit of engagement, not only inside SARS but also with external role players like some of the accounting bodies, and the people who do the payroll systems. There was extensive engagement both internally and externally. At that stage the strategy was definitely to modernise, and there is a living document called the modernisation plan, which has expanded over many years. The liberals on this plan would move around based on priorities and readiness to deliver, but there was always a plan in place. Senior leadership has a weekly meeting with all their role players to review the plan every week. They discuss what will be happening over the next six months and there was a living document that continued to be maintained. Respondent seven said that all divisional heads were part of the strategy.

4.1.5 Top management support

- **Was there top management support from the inception of the e-government initiative?**

The respondents agreed unanimously that there was top management support. Respondent three from SARS said, “absolutely, I think that is exactly the approach we had as far as I know; and it is the exactly the same today.” Part of SARS objectives for 2021 to 2025 is to migrate users onto a digital channel as part of the strategy which in itself, implies that there is support from top management and that is something the Commissioner is very keen on.

Respondent four mentioned that the migration to digital was a huge driver and the migration to the digital channels increased year on year and currently SARS has over 95 percent of taxpayers filing their tax returns using a digital channel. The whole modernisation programme was driven by top management. Respondent Seven said that the SARS e-filing system had support from the divisional head and the Commissioner also supported the e-government initiative because in every meeting that was held with the staff, he always talked about e-filing for online channels, and about getting the taxpayers onto online channels. Respondent Seven further stated that he/she thinks that the Commissioner went onto the SARS channel on YouTube and spoke extensively about getting the taxpayers to have access to the online channels.

- **Was it visible during all stages of the initiative?**

All the respondents agreed that the top management support was visible during all stages of the initiative. Respondent three said, "Absolutely, we understand that if we get more of the population to use e-filing and migrate with the digital channel that we can start focusing on doing other things a little bit better."

According to Respondent four, the operational team provides an update to top management who gives input for improvement. They contribute towards making the e-filing solution better. When the e-filing system was launched, there was a demonstration, and it can be seen how the e-government initiative progressed making this online tool easier, better and simpler for the taxpayers to comply with regarding their tax obligations.

Respondents five and six went down memory lane and indicated that it was definitely visible. they went on to say that they remembered the days when they used to get together in the massive hallway. The e-filing system was presented, and they were shown how it would work. From a visibility perspective a lot of the change that started at the head office perspective but through the line management, would then be communicated in frequent updates in regional centres by way of road shows, workshops and frequently briefings to staff who would get weekly and monthly updates from leadership through internal communiques regarding the progress, and about what the next steps were. There was quite a bit of visibility and communication throughout the process.

- **What support was provided by Top Management?**

Respondents one and two said, "the support provided by top management were financial resources, human resources, critical risks escalation and executive decisions." Respondent four stated that the support provided by top management was more than adequate. The number of taxpayers using the e-filing system was quite big, SARS was expecting to move from around 70 percent to 85 percent in 2021, but already 92 percent of taxpayers were using the e-filing system and it was primarily because of COVID.

What didn't happen is that they did not move the people onto the digital online platform or channels in the contact centre, to support taxpayers requiring assistance with filing their returns on the digital platform, mobile application or using e-filing. A lot of the taxpayers called for support and there were not enough staff to help them. The respondent indicated that that was something that SARS did not get right in 2021, but he mentioned that they were moving towards that now. The respondent went on to say that it would probably be better in the next year. Respondents five and six mentioned that the CIO at that stage was very involved and very hands-on with his direct team and he did give a lot of guidance regarding prioritisation and dealing with conflict at the time. There was fair amount of hands-on support from top management.

Respondent seven said that top management provided support in terms of change management and resource availability. There are always sessions with the divisional head, where the staff shared their experiences and concerns about dealing with the taxpayers. A weekly meeting was held with the divisional head who listened to the staff's concerns and provided support. If there was any escalation to be done the divisional head was the first one to take it forward.

4.1.6 Leadership

- **Was there a strong leader supporting (DG/CEO and the Minister) during the e-government initiative, by making things happen?**

Respondents one and two stated that there was support from a strong leader in the form of the SARS Commissioner. Respondent four indicated that there was support from all the Ministers. The respondent had been with SARS for 12 years, and there were several Ministers that came and left, and they were all very excited about the SARS e-filing system.

Respondents five and six mentioned that the modernisation programme was started by Minister Trevor Manuel who endorsed the modernisation programme, and it was run by the Commissioner who then became the Minister. That meant that the support continued because it was his pet project, so the modernisation programme continued. Respondent Seven stated that if SARS had not got treasury approval there would not have been an e-filing system. SARS would not have the e-filing platform. Even to enhance the system additional funds are required and the organisation is doing well within the constraint resources they have. The respondent further stated that SARS was supported by treasury to implement the changes.

- **Would you say that the e-government initiative was a high priority for the leadership?**

All the respondents indicated that the e-government initiative was a high priority for the leadership. Respondents one and two said that it was a countrywide initiative and data integrity was of great importance to the organisation, Respondents five and six mentioned that SARS wanted tax returns to be more automated. Respondent Seven stated that the more taxpayers SARS can migrate to online channels, the more tax compliant taxpayers SARS would have in the register. E-filing is the one system that will allow taxpayers to file returns without any issues,

Taxpayers would be able to pay SARS without any issues, so it is high priority for revenue collection initiatives and tax compliance.

- **What support was provided by the leadership?**

Respondents one and two indicated that leadership ensured that there were financial and human resources available. They assisted with issue resolution and decision making. Respondents five and six mentioned that leadership provided support throughout the initiative. Respondent Seven said that it was not just the support. It was also a drive and they shared the same passion, they have for the e-filing channel. Respondent Seven attended meetings with most of the leadership and they always emphasised the importance of the staff driving the numbers into the online channels so that it could free staff to do certain activities that were critical in the business. The respondent stated that the leadership went beyond just support, they also shared their passion to move the clients onto the online channels.

4.1.7 Citizen centric

Would you say that the e-government system is easily accessible, user friendly and quick to complete for the citizens?

All the respondents were unanimous and said that the e-filing was easily accessible, user friendly and quick to complete for citizens. Respondent One said that the e-filing system was tested for usability and Respondent Two validated that by saying that the reports were easy to use. Respondent four described the system as being highly user friendly, extremely accessible and very simple and easy to use. SARS definitely saw a ramp-up in usage so it could be said that throughout the implementation, it was a simple process. Tax is not simple, but SARS have tried to make it as easily accessible and user friendly as possible. They created more awareness and more training, which simplified the system. Respondent Seven said that it is accessible and in the last two or three years a lot has improved in terms of navigation through the system. People might feel that it is a bit difficult, but it is only because there are new enhancements that were implemented to make it easier for them to transact. There are new features that probably will impact a person's ability to transact, but in the long term this system is used frequently by clients than anything else. The one thing that that the respondent thinks is as being negative in terms of how clients view the filing system is the lack of them accessing the guidelines while navigating on the system. There are guidelines that the organisation has put in place to assist clients. When a client is referred to the guideline, they find it easier, but once they have been informed that it is still available, those taxpayers do not have any challenges accessing the system.

- **Did the e-government initiative consider the needs of different people during the development stages?**

According to Respondent four, SARS do not force people to do e-filing and they are given various channels to use. SARS also created an estimated assessment where the information is pre-populated which makes it easier for the taxpayer to accept and submit. They also say to people that if they struggle but want to do filing digitally, they can use the 'help you e-file' channel where the staff in the contact centre can assist the person to submit their return. If they still struggle, they can make an appointment and go to their nearest branch where one of the branch agents will assist them.

SARS recognises that people are at different levels. Therefore, there are multiple channels that people can use to submit their return. SARS makes it easier for the taxpayer and when they do go into a branch the staff try and educate the taxpayers; so hopefully, next time round, they will not be so intimidated, will feel more comfortable and will be able to do their own return online. Respondents five and six indicated that SARS has fifty-two branches where they can go and submit their return. There are units that also go to the rural areas to help people. Respondent Seven said that in 2020 SARS had to simplify the process further and now the clients complained about how complex the system was in the past. This shows that SARS did listen to the clients' concerns. They implemented a survey before migrating to the new platform. The taxpayers had a chance to voice their frustrations and what they recommended was proven to be the best way for SARS to go. Practitioners had a different engagement session with SARS compared to ordinary clients. A survey was sent to the ordinary citizens for them to give feedback and there was also an engagement specifically designed for the bigger clients' tax practitioners.

4.1.8 Funding

- **Was there adequate funding for the e-government project?**

Most of the respondents indicated that there was adequate funding for the e-government project. Respondent Two stated that there was funding for the enhancements of the reports. Respondent four mentioned that there had always been funding that was made available over a number of years. At one stage the development on e-filing was stalled because the organisation wanted to do a review of the IT strategy and so in 2018-2019, the IT Unit wrote a substantial business case motivating for an acceleration of the work that needed to be done on e-filing and three things were done.

The first thing was that they moved all the personal income tax forms on e-filing to HTML and Adobe. The second thing was to insist that all the changes should be done as per the law and according to what the Minister of Finance had said in his budget speech. How they were going to adjust the budget for example by increasing the sin tax, by increasing vat and other means was mentioned by the Minister of Finance. All those changes had to be done on the e-filing system.

The last thing was to make things easier and better for clients to use the e-filing system, so one of the things to make it easier that SARS did was to implement a solution for the visually impaired. When the redesign on the e-filing was done the aim was to make it simpler and clearer. Therefore, the colours and the clarity of the form were changed. SARS also started stepping up the work on the mobile application so that a lot more could be done on the mobile application than what had been done previously. Respondents five and six stated, "that there was a budget allocated, however I would not use the word adequate but within government terms it was significant." For the modernisation programme in the respondent's opinion there were adequate funds. There was an initial budget allocation for a phased approach and then the organisation had to make do with they could with the budget that was available. Respondent Seven mentioned that the funds are never enough, but due to the fact that SARS did implement the new system in 2009 and had also recently migrated it into a new platform, funding should have been made available.

- **Are funds being allocated yearly for maintenance and enhancements?**

Most of the respondents answered yes to this question. Respondent Two mentioned that there is a support team that maintains the system. Respondent four explained that all the maintenance and the support work are part of the IT budget. Any changes on e-filing goes through a governance process where it has to present a business case. This means that they have to do all the user requirement specifications and a feasibility study. The user requirement specification is where they list all the requirements that they want to see in the new design. They then go out by means of procurement to ask vendors to come on board and support them with the work. They have to establish how much it will cost. Once they have the costing inserted into the business case, it goes through a governance process where they look at the business case and the funding and decide whether it fits into the current strategy, if it does it is approved.

If they have to obtain the services of vendors, it will go through another governance process which is the National Judication Committee, if the committee approves it, depending on the value, the Chief Financial Officer either signs off on it if the value is over a certain amount. It must then go to the Commissioner for final approval. There is a lot of governance involved. Once all the signatures have been obtained, they will go through a proper tender process. It then goes back to the National Judication Committee with a recommendation to appoint a vendor.

The funding and the project plan are then confirmed. Once all those things are approved, it goes to the branch committee where they prioritise the work. They look at the business case again, depending on the value, and either the chairperson will sign off on it or it will go to the Commissioner for sign off. Respondents five and six indicated that there is a standard budget for maintenance and a separate budget for enhancements. Every year they do business cases on their plans for the next year, and then those plans are submitted to treasury for funding. Respondent Seven said that every time that SARS identifies an opportunity and funding is available, an upgrade is done. Regular maintenance is done. They have another theme strategy project where they identify an opportunity to enhance the e-filing or to add additional functionality.

4.2 Responses for the Smart ID card system

The questions used for the SARS survey was the same for the DHA. Unfortunately, the officials from the DHA were not willing to participate in the interview and the questionnaire. Initially, the researcher requested permission from the Ethics Committee to only conduct online interviews due to COVID. However, the response from DHA was very poor so the researcher amended the Ethics Application and obtained approval to send the interview form to the participants and to include the ICT Unit, the Project Management Office and the Business Unit. The Business Unit is the unit requested the project and provided the specifications.

Even with these amendments to the methodology and several e-mail and phone call requests, the researcher only obtained five responses from DHA. Some of the responses were also very vague and the participants did not elaborate on their responses. It is assumed that some government officials are not interested in assisting research students even though permission was obtained by following the correct procedure from the research unit at DHA. The respondents were from the IT Unit and the Project Management Office who were involved with the development and implementation of the Smart ID card system at DHA. The Business Unit indicated that they had nothing to contribute towards the research.

4.2.1 Technical staff

- **Was a service provider appointed to develop the DHA Smart ID card system?**

According to all the respondents, service providers were appointed to develop the Smart ID card system for the DHA. Respondent eight said that the foundation of the Smart ID system or the architecture thereof is based on the SARS e-filing system. At the time of the conceptualisation there were challenges due to it being the first time a system was supposed to be implemented by another service provider. in terms of contractual obligations, the service providers who were appointed were actually accountable and responsible to SARS and therefore SARS was responsible for making sure that they were providing the Smart ID card system to the department. Some elements were handed over to the department. The entire system was not handed over. There were some aspects that are still being maintained through SARS with the service providers that they had used. The service providers remained in order to make sure that the system could provide end to end services; some of which were being managed by their departments.

According to respondent nine, when it came to the Smart ID card systems, the system was born from the Home Affairs project called ‘Who Am I online’. Because that project failed, they decided to go through the same project, but piece by piece. The first phase was the live capture system where the staff capture the client’s ID and passport live. The fact that it was a live capture system meant that they had to follow the plan exactly. The capturing staff needed to make sure that by the time a person left the Home Affairs offices, everything about the person would have been captured and documented and all the information had to be in the smart card. Then the smart card would be sent for printing. That was the national plan to ensure that there was quality as opposed to quantity.

At the beginning when one applied for an ID, one had to fill out forms and the forms then lay in the offices. An official would then capture the form into the NPR with its history associated. From there it went through a process whereby the ID would take about three to four months before being issued, but with the implementation of the live capture the department made sure that the process took a maximum of two weeks to get the ID produced. Home Affairs went through the process with their partner SARS which was also a service provider. The same service provider helped DHA to develop a system called the live capture system which is used to produce Smart ID card systems and passports. The DHA understood that SARS had gone through the same challenges they had had, and that was when the former Minister decided to request SARS to help develop the system. SARS brought their own service providers; an agreement was drawn up and the system was developed. A service provider was appointed to work with in-house officials to develop the project.

- **What training did the technical staff undergo?**

According to respondent eight, it is new technology. In terms of development, different languages are being used to develop a particular system, so one would find that although the Smart ID card system is using a particular technology, the department does not have the skill. That was why the system was outsourced so the DHA could have the necessary expertise in various environments to develop the system. The DHA staff were trained at a later stage, but the responsibilities in terms of support and maintenance still lay with SARS in terms of code maintenance.

Respondent nine confidently said that the good thing about the relationship that existed between SARS and the DHA, was that SARS was part of the government, so they would not do anything that would jeopardise another department. Part of it was to make sure that even the technical team were part of the plan even when developing the system because it was complex. Some of the components within the system are not manufactured by the service providers but instead by the technical staff at Home Affairs. It was a big project where component A was for Home Affairs, component B was for SARS and component C was for another stakeholder because the system was so comprehensive. That meant that the Home Affairs technical staff had to be fully abreast with what was going on because they were part of the project from the inception right up until the end; to the extent that they were handling some of the things themselves and were even engaging with the service provider. In some instances, a Home Affairs team will even correct the service provider when they notice that something is not right. The service providers understood that the Home Affairs team had a lot of knowledge and would accept when they were wrong. Home Affairs had a healthy and fruitful relationship with the service providers. Respondent ten indicated that there were various training sessions that took place; depending on the field the official was working on. For example, Data Centre officials would go to training for handling servers, storage, backups, active directory and so on. Application Officials would attend training for databases and software developing tools. Networks officials attended Cisco courses. Respondent thirteen mentioned that the technical staff attended training on system, networking and infrastructure workshops and software application design methodologies.

- **Were there adequate technical staff when the system was implemented?**

Respondent eight said that the Smart ID card system was done in collaboration with the service providers but if it was only DHA the respondent replied there were not enough technical staff when the system was implemented. The reason why the system was outsourced was because there was no capability and capacity within the department to be able to develop and maintain the system. If one looks in terms of collaboration between the department, SARS and its service providers, there were adequate staff as well as capabilities among them to do the job. Respondent nine mentioned that there were two service providers at DHA who were doing various types of maintenance on different components of the systems at the time of the interview. Respondent ten stated that, there was inadequate technical staff when the system was implemented. However, the respondent did not elaborate on the answer provided. There was a mixed response for this question. Respondents Eleven, Twelve and Thirteen stated that there were adequate technical staff when the system was implemented.

- **Are there adequate technical staff to fix problems when they arise with the system?**

Respondent eight indicated that the department created an internal call centre which was capacitated. People were able to call in and report the issues in terms of the smart IDs and the background technically. There was a committee called the 'command centre'. The role of the command centre was to make sure that there was a quicker turnaround time in terms of the technical issues that were being raised as well as changes that needed to be implemented. There could be a security change, or someone might point out a security concern that needed to be attended to urgently and a change is made and that change is then implemented into the production environment. Another role of the command centre is to make sure that those particular changes are done within the time allocated and subsequent to that, that the system is still capable and able to provide services as required.

Respondent nine mentioned that one of the respondents had stated that there were certainly not enough technical staff to fix problems when they arose with the system. One of the rationales behind saying that the DHA should still be the service providers was not because of the skills they had but rather because of their staff compliment that was sufficient to comply with the public's needs. In the private sector you might find one person who could focus on one particular component but in government, because of the lack of staff, the staff have to multitask. If the truth be told, the DHA did not have enough staff to support all its needs. That is why it is always imperative to have service providers to help with the maintenance support. The DHAs work is large and there is a need to expand to a point where every citizen will have services delivered as comfortably as possible without having to finance them. For that to be achieved, it means that the DHA needs to expand its services. Because it is part of the footprint, that also means that its support must be expanded. The people doing the support have to be multiplied, as it stands, it is not sufficient. There was a comparison done between Home Affairs and SARS when the DHA were supposed to take over everything and it was soon realised that the Home Affairs technical team was not even half of what SARS had so that means that the technical staff is not sufficient for different reasons. Respondent ten indicated that there was not enough technical staff. The system was rolled out to more than 200 sites/offices whereby only four officials are looking after the security of the Network and firewalls. A single official is responsible for the entire Active Directory Environment for the department on a specialist skill level, and a team of four junior staff were looking after more than 400 servers across the country.

The respondents who indicated that there were not enough technical staff provided explanations as to why they felt that way. However, respondents Eleven and Twelve mentioned that there were enough staff but did not elaborate on their responses. Respondent Thirteen stated that although SARS still assisted the DHA. However, operations support is the responsibility of DHA which has limited technical staff and expertise on the system. When SARS does not have the capacity to volunteer, DHA takes a long time to detect and fix system bugs.

- **What is the turnover rate with technical staff?**

Respondent eight indicated that there had been some resignations but would not say that that was a high turnover. There had also been some appointments, so some positions had been filled while other positions remained vacant. Advertisements had been placed in the media. Respondent eight also indicated that the staff complement might balance in the near future. There were still some vacant positions because some of them were not funded and therefore could not be filled. A business case was being presented to treasury to make sure that they provided funding so that the department could be capacitated with the right skills.

Respondent Twelve stated that the turnover rate among the technical staff was very high, because when the system was implemented as part of the implementation of the system, they were trained and became highly skilled. Therefore, they are being head hunted by organisations who can provide them with better salaries and less pressured environments.

Respondent Thirteen stated that SARS had been struggling with capacity since 2010. For these reasons, SARS continuously upgrades its technical teams. DHA is also struggling to acquire or attract the right level of skills to maintain the solution.

4.2.2 Change management

- **Did change management take place with frontline workers from the previous system that was used to run the e-government system and how did it take place?**

Respondent eight stated that change management played a big role in making sure that changes could be made easily in the environment. There is a section in human resources whose sole mandate is to make sure that during the development and testing stage, they have people who are being well trained, especially when the system is being tested in terms of the requirements to make sure that the staff members understand it. and therefore are able to train other staff members who will then be able to cope with implementing the new system. In terms of change management at the departmental level, there was some communication before the Smart ID card system was adopted and a number of meetings were held they took pains to train the front office officials to make sure that they also understood what was coming and how it would impact their daily work. At present DHA has about 994 offices that deployed the Smart ID card system and there are plans to make sure that the operation is expanded to all the remaining Home Affairs offices. Information was communicated via the gazettes and via TV interviews, promotions on TV, announcements on radios and placard before and after the implementation. There was also information on the DHA website which showed where clients could go to apply for their Smart ID cards. In terms of change management, the DHA has done quite well because proper communication and training took place.

Respondent nine said that change management took place which was one of the success factors for the Smart ID card system. Change is inevitable but it is difficult because people do not want to change. There was proper change management when the Smart ID card system was implemented. The change process was led by the DHAs Human Resource (HR) team. Training was conducted which contributed towards the success of the new system. The training was robust, and is continuing because Home Affairs keeps hiring new people. Therefore, there has to be continuous training on the system taking place. The IT Unit monitors the system to ensure that there is continuous improvement. The enhancements also require staff to be trained on new changes. All changes need to be introduced to colleagues in the other branches. The training and education are continuous particularly for newly employed staff and for those who need refresher training. Training sessions are led by the HR team with the support of IT to train the trainers before they can train staff. Respondent ten said that training was provided by the learning academy section of the department. Respondent Twelve stated that a comprehensive change management and training programme was in place. All the respondents unanimously agreed that change management was continuously taking place.

- **How is change management sustained?**

Respondent eight stated that for every change or release at the technical level, the change agents who are part of the learning academy are part of that change and therefore in order to facilitate any change that happen before the user acceptance test is run, there would have been manuals or standard operating procedures that would have had to have been consulted to assist the training staff to prepare them and the trainees so they understand what changes are coming their way and how they would affect their daily work. In the initial stages of training, inevitably there would have been differences in training methods in the various provinces, Trainers would have been booked for sessions perhaps for a week or two to provide training before the system was released. Once the system has been released there is a period wherein the trainees would have had their hands held for another week or so and then thereafter that should have been able to continue working, using the new techniques by themselves. The staff are monitored to make sure that they are able to function without supervision. Nevertheless, customer care support was also created to make sure that if any offices were having issues with the system, they could call and ask for some speedy support so they could continue to provide the service to their clients.

Respondent nine said that Home Affairs had dedicated trainers that are hired by the department to do training full-time. The technical people can also offer continuous knowledge to assist wherever it is needed; which is possible because Home Affairs is a modern government department that is continuously developing, modernising and introducing new systems. in order to enhance the service that must be provided to citizens. There has to be continuous training of staff who are interfacing with clients so they can receive world class service.

Respondent ten mentioned that whenever there is a change on the system the frontline workers are retrained on the changes made. Respondent Eleven stated that refresher courses are offered by the DHA learning academy. Respondent Twelve indicated that change agents have been appointed to ensure sustainability and provide frequent feedback to the change manager. Respondent Thirteen said that it is difficult to say whether the change management is still being sustained as seven years later the DHA management still relies on SARS project leaders to assist with explaining challenges which overrides the idea of staff taking ownership of their own expertise.

4.2.3 Awareness

- **What means were used to communicate the e-government service to the citizens?**

Respondent eight said that information was communicated via gazettes, TV interviews, promotions on TV, and announcements on radio stations and placards, before and after implementation of the new systems.

Respondent nine verified the information provided by the first respondent by indicating that Home Affairs had adverts on TV for the Smart ID card system. The Smart ID card system is a world class product which is highly protected and cannot be forged. A pamphlet was created and the system is advertised on the department's website where they urge people to apply for their Smart ID card system. They also unpack the high-level benefits that one will enjoy if one has a Smart ID card system, as opposed to the previous ID document. According to one respondent ten different Media Houses are used for advertising, there are banners at DHA offices, announcements are made at big soccer matches like the Soweto Derby between Kaizer Chiefs and Orlando Pirates football clubs. Respondent Eleven stated that the DHA is used by print and electronic media to communicate e-government service to the citizens.

- **Are these awareness programmes being sustained after the initial communication?**

Respondent eight said that they were still being sustained but not at the level of when the Smart ID was being introduced because there are issues on that. One would still hear announcements on radio stations because right now there is a memorandum of understanding that the department scored with the banks to expand the services to the banks. On the DHA website it also tells citizens where they can go and how they need to apply through the banks. Clients are able to apply from the comfort of their home but obviously it needs to cut across the entire population because it is known that there are some areas where people do not have access to the internet and they are not privileged to enjoy these services. But to those who are, they are able to apply from the comfort of their home and then pay for the service and get an appointment date. On the appointment date, only fingerprints are taken and then the client is told when they need to come and pick up their Smart ID card. The department is expanding in the sense that it looked at the value proposition of trying to make sure that all the offices were completed at once and then deciding whether to utilise other private companies whereby there is a public private partnership with private companies to host a small Home Affairs office in their buildings. This would enable them to provide those particular services to citizens. The more DHA expand the easier it becomes for people to access the services and avoid the queues which are still a problem for the department.

Respondent nine stated, “the communication part of our section is constantly doing awareness; I know even when they do imbizos, which is one of the common awareness events that the government presents. The imbizos, are ensuring that the awareness is sustained so that the civilians know the benefits of the Smart ID card system.” In the past couple of years, due to COVID, the awareness was not as robust as it used to be when the DHA started the project. Respondent ten mentioned that the banners are still being used but the forms of communication depend on the occurrence of the event and budget constraints. Respondents Eleven and Twelve were also in agreement that the awareness programmes were still being sustained after the initial communication. Respondent Thirteen mentioned that the awareness programmes are being sustained through the Minister’s office. There are also press briefings and the DHA is consistent with its office-based placards.

4.2.4 Strategy

- **Was there a strategy for the implementation of the e-government project?**

All the respondents agreed that there was a strategy in place for the Smart ID card system. Respondent eight said that the Smart ID card system falls under a strategy document called the modernisation strategy. in terms of the modernisation strategy, it was looking at how they modernise the systems and the services that the department offers. The NPR also harnesses other old legal systems that are being used.

Respondent nine mentioned that the magnitude of the systems required a detailed strategy. The big multimillion-rand project would have failed if it were not for the strategies that the DHA gained from the executives. They also provided continuous support and advise to the technical team to do the best that they could do. This led to the success of this e-government project and enabled it to be where it is right now. The department is continuously strategizing in order to protect and safeguard their document. The DHA obtained support for the strategy from the Minister and the Director-General. There was a proper strategy in place that led to the success of this particular product. All the respondents agreed that there was a good strategy for the Smart ID card system. Respondent ten stated that the DHA Top Executives had Steering Committee meetings to discuss and outline the strategies related to the project.

- **Were the relevant stakeholders involved in the development of the strategy and was it implemented as per the strategy implementation plan?**

Respondent eight indicated that there had been some drawbacks in some other areas that could be issues that are beyond the department like COVID for example which meant that there were certain things that could not be done in terms of continuous improvement on the system. The respondent indicated that he/she cannot recall the deeper issues that would have stopped improvements on the system but from the top of their mind, they think that most of the issues were addressed and in line with what was planned. Sometimes there are issues with budget because treasury has been cutting the budget every year and it was found that the budget the department had in the last financial year is not the same as in the current financial year. This means that the DHA might be required to make some adjustments which means that certain services cannot be expanded. For example, if the department wanted to expand the Smart ID system to twenty offices the budget would only allow expansion of ten offices. It has a direct impact on the service, in terms of the number of people that the department would like to reach.

Respondent eight continued by saying that there were a number of stakeholders involved, because the Home Affairs office is now part of the security cluster, so all the departments in the security cluster are also part of it, especially with the development of the card, because it had to meet certain security standards so it is not easily duplicated. Among the stakeholders were the government Printing Works because they are responsible for the printing of the Smart ID card systems using very sophisticated systems to print the ID with certain security features. South Africa's Council for Scientific and Industrial Research (CSIR) was part of the conceptualisation of the Smart ID card system involving very intelligent people with PhDs so there were numbers of stakeholders involved.

Respondent nine mentioned that that this is a massive system. There are relevant stakeholders. The CSIR was one of the stakeholders who provided advice to the DHA, explaining where they might have gone wrong so that the DHA can achieve what they set out to achieve. The department has a couple of internal stakeholders to assist with the implementation of the plan. The respondent believed that the plan was implemented accordingly and that that was the reason why the project is successful. According to all the respondents, the relevant stakeholders were involved in the development of the strategy, and it was implemented as per the strategy implementation plan. Respondent ten stated that there were internal and external stakeholders including some from other government departments. Respondents Eleven and Twelve indicated that both the Civics and Immigration Branches from the DHA were fully involved in the development of the strategy.

4.2.5 Top management support

- **Was there top management support from the inception of the e-government initiative?**

According to respondent eight, certain committees were created, the highest level being the modernisation programme. there are also the internal and external modernisation programmes. The external one involved all the stakeholders, including the service providers that were providing a service to SARS. The Deputy Minister was sometimes present at the meetings and the Director-General chaired the meeting. Sometimes the Minister was part of the engagements and if the Minister could not attend a meeting, feedback was provided in the Ministerial management meetings referred to as the “Triple M”. At the lower level there is the command centre where the DG sometimes became part of the command centre meeting to make sure that what is being discussed at the executive level and management level, is implemented accordingly at the command centre levels.

Respondent nine said that there was proper and sufficient management support from the executive, starting with the Minister, and the Cabinet because of the importance of this particular document. It needs to be safeguarded because the integrity of the country needs to be protected. For that reason, the department had to obtain support from political heads, the executives and management, in order to produce the Smart ID card system. The challenges that the department encountered were easier to resolve due to the support that was obtained from the principles. Respondent ten mentioned that there were standing meetings regarding the progress of the project and that that was where all the challenges were discussed and resolved. Respondent Eleven indicated that top management drives the DHA modernisation strategy. The Director-General chairs a bi-weekly Modernisation Steerco meeting. Respondent Twelve stated that the modernisation strategy is a standing agenda item at the Executive Committee meetings as well. All the respondents agreed that there was top management support from the inception of the e-government initiative, as there were standing meetings regarding the progress of the project and that was where all the challenges were discussed and resolved.

- **Was it visible during all stages of the initiative?**

Majority of the responses obtained, showed that top management support was visible during all stages of the initiative. Respondent eight stated that it was visible because in meetings the heads of departments were in attendance representing their functions to make sure that the work is done in relation to what had been requested and hence supported. Respondent nine mentioned that it was visible especially during the implementation. During the development, the support, was more in monitory value but when it came to implementation, which is where the support was. It was very critical because in any systems life cycle the most difficult and important part is the last stage where staff need to implement, support and maintain because those two are the faces of the systems. If they are not well taken care of, it means that whatever effort that was taken to design the systems are wasted. Due to the support provided, the DHA is continuously doing maintenance to ensure the stability of the systems. Respondent twelve said that there was support from the conceptualisation, planning, development up to full deployment, this includes Ministry involvement as well, which is political. They were very supportive. Respondent ten stated that it was visible but not during all the stages. Respondent eleven said yes, from planning, development to roll-out there was top management support.

- **What support was provided by Top Management?**

Respondent eight stated that it was more of a leadership role to make sure that the various functions were performing at their peak and achieving what was supposed to be achieved. Where issues were not being addressed sufficiently well, management made sure that they were dealt with as soon as possible so there were no delays in terms of implementation. Respondent nine indicated that it was specific in terms of the phases. There was a lot of support during the implementation phase. Even during the development of the system, because there were changes that needed to take place based on the available budget and on the design. The changes had to be supported by top management which made the implementation of the system possible. Respondent ten said that top management provided guidance and direction, making sure that all the necessary resources were available to implement and complete the project. Respondent Eleven mentioned that the Director-General chairs the Modernisation Steerco. All Deputy Director-Generals are present at the meeting to define specifications, drive the programme and advocate for solutions delivered. Respondent Twelve further mentioned that any resolutions of any escalations on issues that arise from the work undertaken by the project team which requires their intervention are discussed at these meetings.

4.2.6 Leadership

- **Was there a strong leader supporting (DG/CEO and the Minister) with the e-government initiative, by making things happen?**

All respondents agreed that there was strong leadership support for the e-government initiative. Respondent eight said that there were changes with leadership, but it was not so dire that the whole e-government initiative had to stop. Respondent nine mentioned that all the different Ministers who came to Home Affairs supported the e-government initiative with good reason. They knew what this product would mean to a South African citizen, it would safeguard the national integrity of the country if that document was well produced, protected and that the information it contained was forever safeguarded. The CIO and other Deputy Director-Generals supported the Director-General. There were a number of changes in terms of the leaders. However, they made sure that they pushed for the project to happen.

- **Would you say that the e-government initiative was a high priority for the leadership?**

All the respondents answered yes that the e-government initiative was a high priority for the leadership. According to respondent eight there is an urgent need to replace the green ID book that existed before the Smart ID card system came in because a person can easily replace their photo on someone else's green ID book. The fraud that takes place costs the country a lot of money. This made the implementation of the Smart ID card system a high priority for leadership. Respondent nine said that the project came with expectations from the country and the expectant deliveries from the leadership and the department, making it a high priority. Respondent Twelve said, that was why most of the initiatives were launched by the State President.

- **What support was provided by the leadership?**

Respondent eight indicated that every Minister that came in would call the command centre team including the leadership of the command centre team and have a discussion on the status of the system and what interventions were required. The respondent mentioned that since their time in the DHA they have met with three of the Ministers who asked questions around the Smart ID card system, on how it was performing and how it could be expanded in terms of the footprints and presence. Respondent eight further indicated that the Ministers also made sure that this particular service was available for everyone; therefore, the number of mobile trucks had increased. They had increased the numbers to make sure that the services were reaching everywhere, while on the other hand they were busy expanding the print runs for placement in offices, including public private partnerships with the banks.

Respondent ten mentioned that they conveyed challenges to top management, making sure that tasks were delivered before deadlines. Respondent Eleven said that the leadership was a role model for changes to the rest of the department. Respondent twelve stated that the leadership was the sponsor, advocate and example of the initiatives to attract both internal and external stakeholders.

4.2.7 Citizen centric

- **Would you say that the e-government service is easily accessible, user friendly and quick to complete for citizens?**

Respondent eight mentioned that in terms of the Smart ID card system application process, the user did not have to fill in any forms. Everything is electronic. When a person goes to the office, they are given a ticket, they then go to the frontline office; the workstation, where the staff capture the person’s biographic details. If the person is a student, the staff might require a birth certificate. if it is an adult the staff might require the person’s old ID and they then capture that information. A person is no longer required to take a photo outside. The photos and fingerprints are taken digitally. The DHA no longer uses that much ink and there is a level of accuracy in terms of the biometrics that are being taken digitally and in terms of the photo that cannot be easily duplicated. The process is a single thing, and it takes 13 days between application and receiving your ID, which has been cut down from 45 days, so it is quite efficient. Respondent eight further mentioned that the department has about seventy-nine vehicles which are equipped with the Smart ID technology, as well as a satellite dish for accessing the network so that the DHA vehicle can be driven to a particular event to assist people, or they can be driven to any school in the rural areas where people have difficulty accessing those services in towns. They are able to do the application in the mobile vehicle and are then called to collect their IDs from the mobile vehicle when they are ready.

Respondent nine explained that people do not have to wait in queues and the good thing is that citizens can apply for their Smart ID card system using the e-Home Affairs website. They can do it in the comfort of their home, can pay online and can attach their supporting documents, they only need to go to Home Affairs to do their fingerprints and the verifications. This is what Home Affairs has done in order to cut the time and maximise the quality. Home Affairs even has a mobile system that goes to far-off areas for people who do not have the money to travel to a local Home Affairs office. There are also mobile trucks, which are still not sufficient but at least the department is trying to make sure that people are serviced where they stay. The department is trying to expand the services which would minimise the queue in the Home Affairs offices and also to assist people so they do not have to travel far for the service, and it will be faster.

Respondent ten argued that it is not easily accessible as only half of the offices are rendering the service and most of them are in urban areas of the country, whereas the rural areas are left out. Respondent Eleven stated that this is in progress. All the services that are online, are easily accessible and user friendly. However, there is still so much work to be done to complete the modernisation strategy and digital transformation of DHA. Respondent Twelve said that the Smart ID card system is reported as being very easily accessible and user friendly from the user experience feedback that was received. The department is working to augment these strategies with additional systems that will enhance the current experience through the use of the modernisation strategy.

- **Did the e-government initiative consider the needs of different people during the development stages?**

Respondent eight praised the Smart ID card system as it has braille for people who are blind or disabled, and they are able to use their hand to make a distinction between the Smart ID card system and other cards. For people who are unable to sign the consent form for themselves there is a process being done in the offices through the families. A certain level of provisions was made to make sure that the system caters for all demographics from the middle upper - and lower-income brackets to those who are living with disabilities. Respondent nine said that Home Affairs took cognizance of the many needs of the people and is continually attending to that. The department constantly enhances and improves the system, based on the needs of the people. The DHA is currently expanding its offices in order to improve service delivery. In the rural farming areas where people do not have the money to go to Home Affairs offices, the service goes to them. They can only get those services through Home Affairs, not anywhere else. The DHA is constantly thinking and designing based on what the people need, which is not just a once off thing, It is a continuous process.

Respondent ten felt that the service focused more on developed townships, towns, cities and less on people in the rural areas. It is believed that the initiative is being rolled out in phases to cater for all different kinds of people. It means that the development is ongoing and every now and then the system is enhanced to cater for different needs for different people. Respondent Eleven agreed that the e-government initiative did consider the various need of the people. However, the DHA is still working on making sure that online services are friendly towards those with visual challenges/disabilities.

4.2.8 Funding

- **Was there adequate funding for the e-government project?**

Respondent Eight said that from a system perspective in terms of paying for services rendered, when it came to the fixing of the system there were enough funds but in terms of expansion related to the footprint the respondent felt that there were not enough funds because the momentum whereby the offices were expanded at the initial phase of the project is not currently progressing fast enough. The respondent believes that that is mostly due to issues of funding because the offices need to meet a certain level of requirements for the system to be hosted in particular office. The department also subsidises every Smart ID card system that is being printed for every citizen. The department charges the user about R140, and the department pays about R40 extra for it to be printed and delivered so the department is funding part of the card for every citizen. There were discussions around increasing the payment for the Smart ID card system but there are people who are earning R350 a month for example, and it would be sad to take R200 from them to get a Smart ID card system.

Respondent nine mentioned that from the yearly budget the department budgets for those cards according to funds allocated from National Treasury. The department can go back and request more funds based on the amount required for system enhancements to improve user satisfaction. Funding is critical. In some instances, the DHA requests citizens to self-fund themselves. Self-funding in government is when citizens have to pay. The department takes a portion of that money and uses it to enhance the product.

Respondent ten agreed that funding for developing and implementing the system was sufficient but was insufficient for the human resources who would maintain and support it. Respondent Eleven replied that the projects were well funded; however, there were challenges being experienced with the compensation of employees' budgets that was shrinking, and the DHA is unable to keep technical experts in some areas.

- **Are funds being allocated yearly for maintenance and enhancements?**

Respondent eight replied, "yes, there is money from treasury, the money that is being given cannot be used for anything else other than Smart ID card system related issues, and that money is given every financial year and obviously there has to be a business case or some motivation that is provided every year to treasury to say that in the following year we are going to need this much budget." Respondent nine indicated that the department allocated money yearly for enhancements but when it is a project, it is on project mode. In terms of maintenance the same thing is done. For licensing or even enhancements, an allocation is done per financial year. "Yes, but for the system and service providers," said respondent ten. Respondent Eleven mentioned that to date, the project budget is still ring fenced and is also used for maintenance and support of newly developed systems. Respondent Twelve said yes, there is sufficient budget allocation for maintenance and support of newly developed systems, every financial year. Respondent Thirteen said that the modernisation agenda enjoys budget from National Treasury for enhancements and operations yearly.

4.3 Responses for the National Population Register

This e-government initiative is not one of the successful projects but is in the same department as one of the most successful projects, being the Smart ID card system. The researcher wanted to know what the factors were that differentiated the more successful from the less successful e-government initiatives. The officials who completed the questionnaire did not

have anything to say on the NPR, but when the officials were interviewed, they were prompted by the researcher to answer questions on the NPR. Only respondents eight and nine contributed to that part of the section.
Respondent eight provided a bit of background on the NPR; saying that it was not a service provided to the citizens but a system that feeds into other systems or other systems feed into it. It is a government-to-government e-government service. The department has been using some of the systems which they call the legacy systems; meaning that the systems are very old and, basically, they need to be changed. The DHA runs the NPR and the Home Affairs national identification system. In terms of the e-service or e-government strategy that the department has adopted, they wanted to start moving away from all those legacy systems and the NPR is one of them. Its sole purpose is to deal with the bio graphics of an individual. It looks at the person’s address, their name, surname and the Home Affairs national identification system deals with the person’s biometrics, meaning the person’s fingerprint. Ideally, going into the future is iris, palm and all those. The first system which was critical; looking at what is happening in the country in terms of fraud and corruption, is; the department decided to focus more on the biometric aspect of upgrading the system and therefore there's a system that is to be launched very soon; probably late this year (2021) or early next year (2022) it is called the ABIS project which is the abbreviation for Automated Biometric Identification System. The Home Affairs national identification system will replace the NPR.

Respondent nine mentioned that with the NPR, there is no service provider appointed except that the NPR is a system that is managed by the Home Affairs developers because the system is a legacy system written with an instructor language, specifically Cobalt, Natural and other databases. There is no service provider. However, because it is part of the government, it is hosted by SITA as part of the legislation. SITA also oversees and manages the storage. They manage the database locations at the interface, but apart from that it is Home Affairs together with SITA as part of the government’s responsibility to do that. No other additional entities or service providers are doing that or working with the NPR.

Respondent nine mentioned that the NPR is a legacy system, it is very reliable in terms of the robustness, but that being said; because it is a legacy system it has some limitations. Some the cleaning-up is still required. It is rigid and work needs to be done on it, but the respondent further mentioned that although it is reliable, there is work that needs to be done on it.

Respondent nine further mentioned that owing to the NPR being a legacy system, it means that those who understand the languages used, are very scarce resources. It is a particular generation of people that do that, the older generation that understands the language of the

NPR. It also touches on the novel trait that you need to have enough or sufficient funding in order to support the NPR and enhance and even upgrade those services on NPR.

Respondent nine continued by saying that funding is the difficult part of the system, even when it comes to the NPR. The fact that the NPR is a legacy system does not mean that the enhancements have been stopped because if the enhancements stop it means that other systems would not link to the NPR, which is a core system. For any system to function it needs to interact with the NPR, which means that development still needs to be done with NPR.

The researcher has deduced from the responses obtained, that the NPR is a legacy system and been around for a long time which is to be replaced. For the NPR to be operational there has to be technical staff to maintain the system, together with SITA. There was no change management taking place as it has been around for a long time. There are no awareness programmes as it is a government-to-government service and is currently being used by other government departments. There is a modernisation strategy in place for it to be replaced. Obviously, there is top management and leadership support as it is a core system which feeds into other systems, and it is still operating with the necessary resources. There is funding to maintain the system and there is no need for it to be citizen centric, as it is a government-to-government service.

4.4 Chapter Summary

This chapter focused on the responses obtained from the interviews and questionnaire from the target sample who were officials working with the e-filing system from SARS and officials working with the Smart ID card system and the NPR from the DHA. There were eight factors that the researcher used from the Altameem *et al.* model (2006). They were the technical staff, change management, awareness, strategy, top management support, leadership, being citizen centric and funding. The questions were based around these eight themes to determine to what extent each of these themes was utilised in the e-government initiative. The responses to the questions enabled the researcher to find out what factors led to the success of the two e-government initiatives. Apart from the two highly successful e-government initiatives there was one e-government initiative that is considered to be less successful which is in the same department with the highly successful e-government initiative. The researcher wanted to ascertain why one department has a highly successful e-government initiative and an unsuccessful initiative. Surely all the e-government initiatives coming from that department should be equally successful. The next chapter will analyse all the answers obtained for each of the eight factors for the SARS e-filing system, the Smart ID card system and the NPR. The chapter will focus on the interpretation and analysis of themes. The findings in this chapter will be analysed and presented for each of the eight themes, for the three cases studies: the SARS e-filing system, the Smart ID card system and the NPR.

Chapter Five: Interpretation and Discussion

5. Introduction

The findings from the previous chapter will be interpreted and analysed in this chapter. Data were collected through semi-structured in-depth elite interviews, conducted online due to COVID, and, in cases where respondents were too busy, through an online questionnaire, which was completed by the respondents and returned to the researcher by e-mail. The researcher decided to provide a definition of data analysis and interpretation to ensure that the reader understands what the chapter is about. The responses have been clustered into eight themes by Altameem et *al.* (2006) as discussed previous chapters. The eight themes are technical staff, change management, awareness, strategy, top management support, leadership, citizen centric operation and funding. The responses obtained from SARS are analysed first followed by the responses from the DHA. The responses are examined to determine if the two research questions for this study have been answered. The two research questions are:

1. Were the eight factors referred to by Altameem et *al.* (2006) found in the three selected e-government initiatives?
2. What are the factors that differentiate the more successful from the less successful e-government initiatives?

Upon completion of the analysis and answering the two research questions, the chapter is summarised in the conclusion.

5.1 Analysis factors

The methodology discussed in chapter three described the factors that were used for this study. The Altameem et *al.* (2006) model has twenty-four factors however many were not applicable to a developing country like South Africa. Therefore, the researcher chose eight that were more relevant to the South African public service. The eight factors are technical staff which focuses on the adequacy and training of technical staff, change management to find out if there was change management when the e-government initiative was introduced and how was it sustained, awareness whereby people were made aware of the e-government initiative, strategy, to determine if there was a strategy for the e-government initiative and if it was implemented as per the plan. The next four factors were concerned with management; in an effort to find out whether management supported the initiative, whether there was sufficient leadership, whether the operation was citizen centric, whether the officials considered the needs of the users and lastly it examined whether there was adequate funding for the e-government initiative. The analysis in this chapter was done according to the eight factors, focusing on the evidence across the three cases from chapter four, to determine whether it resonated with the claims of Altameem et *al.* (2006). The analysis was done according to Creswell (2009). Thereafter the researcher arrived at a meaning that was drawn from the findings of the data analysis.

5.1.1 Technical staff

SARS went through a tender process and recruited service providers. The organisation drew up the specifications which the service providers used to develop the e-filing system. Three different service providers are responsible for the components of the system. Altameem *et al.* (2006) stated that according to past studies, a successful e-government project requires adequate technical staff and great implementation and operational efforts. SARS had service providers as well as its own staff to design, develop and implement the e-filing system which was adequate for the task.

Breckenridge (2019: 96-97) stated that, "the complete outsourcing of technology development to external service providers in the public sector ID environment had previously resulted in "vendor lock-in". Interoperability is identified as a mechanism for overcoming this very real regional challenge. Breckenridge (2008: 49) further stated that, "this also resulted in tender and procurement challenges, which directly derailed the national ID project in the past at several points, including the contract disputes that arose in the development of the HANIS system." However, with SARS the problems derived from a combination of service providers and their own staff.

A similar approach was used with the Smart ID card system where SARS assisted the DHA. SARS brought their service providers that were used for the SARS e-filing system; an agreement was drawn up and the Smart ID card system was developed. One of the contributing success factors to the Smart ID card system was that the DHA did not have to go through the challenges that SARS experienced as they had already developed solutions for the challenges. The service providers worked with the DHA officials to design and develop the system. At the time of development and implementation there were adequate staff as service providers as well as the internal IT staff from DHA were available. If there had only been DHA staff, it would not have been adequate.

SARS has its own Institute of learning and training was done on e-filing. Even the service providers were trained on the SARS software development life cycle and project management methodologies adopted by SARS; so that they had a better understanding of what was required of them. The technical staff underwent various types of training depending on the area they worked on. SARS has adequate technical staff to fix problems when they arise on the system. They also have developers to assist if they cannot solve a problem. An incident management process is used to resolve issues with the e-filing system. There is a WhatsApp group which includes both operations and the technical team. These people are able to fix problems immediately if it is important. In terms of the technical staff turnover there were mixed responses. Some respondents said there was a high turnover while others indicated that staff stay in the organisation for a long time. If there is high staff turnover SARS has mentorship and learnership programmes to balance the flows. When people leave the organisation there are others available to take over and fill the gaps. Gil-García and Pardo (2005: 195) stated that, "it is important to take into consideration potential shortages of skilled staff; and that an incremental approach can help in dealing with this problem." With regard to the technical staff, SARS is doing quite well as there are various measures that have been put in place to overcome challenges. This has contributed to the success of the e-filing system.

The DHA staff did receive training as various IT languages were used to develop the Smart ID card system. The IT staff attended various training sessions. Due to the project being so huge, the staff were divided into teams whereby each team had a certain component of the work to take care of which made it easier and more manageable. It seems that there are not enough technical staff in the department to sort out problems with the system as they arose, as the system was rolled out to more than 200 sites and the various operations need to be expanded to cover the entire country.

A business case has to be made to National Treasury for funding, so departments can be capacitated with the right skills. Farelo and Morris (2006: 6) stated that, "South Africa faced significant human capital development challenges in building the Inclusive Information Society. One of the key challenges was the shortage of skilled ICT people in the country, which was exacerbated by the "brain drain" of skilled ICT personnel and other professionals to developed countries, and from the public to the private sector." The NPR has the required technical staff to ensure that it is functional. According to Altameem et *al.* (2006) technical staff are essential for the successful implementation of e-government. The SARS e-filing system and the Smart ID card system both had service providers and internal staff which were adequate for the implementation, which this contributed to its success. The NPR is a legacy system which requires specialised knowledge and expertise, which is scarce nowadays, so the system needs to be modernised.

5.1.2 Change management

Samsor (2020: 54) stated that, "government officials and the public are predisposed to change, and many are reluctant to use e-government as an alternative way of service delivery, particularly in relation to e-services." It is therefore essential that change management takes place and is sustained. Change management took place at SARS when the e-filing system was implemented. The organisation used internal communication, training, system testing and the testing of reports involving relevant stakeholders.

There is a change campaign unit that falls under operation effectiveness and production planning that ensures that changes take place smoothly. Staff are trained in such a way that it is made exciting for them to accept changes. Change management is sustained through ongoing training. There are YouTube videos, webinars and tutorials on the SARS website. The staff are continuously involved with changes that take place with e-filing and this has resulted in them embracing the changes. Apleni and Smuts (2020: 20) emphasised that, "training is of utmost importance in improving the overall success of e-government which goes hand in hand with communication and change management, as well as with coping with new technology. Training is associated with endowing citizens with the hard, technical skills that are required to enable the use of technology which leads to the increased diffusion of e-government services into society. Training and confidence in using technology, also impacts the rate at which citizens adopt e-government."

Change management was taken seriously when the Smart ID card system was implemented, both in the department with the front office officials and the public. The DHA has a learning academy section in the department that provides robust training to new officials when changes are made to the system as well as refresher courses. For the public there were television interviews and promotions, announcements on the radio, placards, and information on the DHA website before and after the implementation of the Smart ID card system. This was another one of the contributing success factors of the Smart ID card system. Whenever there are changes to the system there are manuals or standard operating procedures developed that would assist the frontline staff to better understand and accept the changes that were to come. Training is continuous with the frontline staff, so that they can offer a world class service to the clients. It is regarded as one of the essential components of change management. There are change agents who have been appointed to ensure the sustainability of the change process and they provide frequent feedback to the change manager. Altameem et *al.* (2006: 4) mentioned that, "with any e-government initiative there must be a certain degree of change management" which was successfully undertaken for both the SARS e-filing system and the

Smart ID card system. The NPR is an old system and there has been no change management related to the NPR.

5.1.3 Awareness

SARS used different types of communication to make the public aware of the e-filing system. When it was introduced there were quite a bit of newspaper advertisements; pamphlets were handed out and there was a presence at malls creating awareness on the e-filing system. When a user phones SARS there is an announcement while they wait, advising them of the online channels. Social media is one of the most used forms of communication nowadays and SARS uses this to upload educational videos on the YouTube channel for their users. There are radio advertisements targeting people in the outlying rural areas. Samsor (2020) also mentioned, “that social media is a good method of creating awareness; as well as using various channels such as radio, television, advertisements, mobile application and social media. There are billboards along the major routes in Johannesburg. The awareness of the e-filing system is sustained, especially during the filing period through social media, like Facebook and Twitter, among other forms of awareness programmes.

There were a number of awareness programmes that were used to inform the citizens about the implementation of the Smart ID card system. They included television interviews and promotions, announcements on radio stations, placards and information on the DHA website informing citizens where they could go to apply for a Smart ID card system. The website also provided information on the benefits one would enjoy by having the Smart ID card system instead of the green ID document. Announcements were also made at the big soccer matches like the Soweto Derby between Kaizer Chiefs and Orlando Pirates football clubs. The DHA was very creative in their awareness programmes and reached a lot of citizens. The awareness is not as robust today as it was when the Smart ID card system was first implemented due to COVID and budget constraints. However, the DHA still continues to make citizens aware of the Smart ID card system and its benefits. Altameem et *al.* (2006) stated that awareness means keeping the appropriate stakeholders informed of e-government services and benefits. The rapid changes in technology led to the need for awareness programmes which are crucial in e-government implementation. There have been intense awareness campaigns for the SARS e-filing system and the Smart ID card system. The NPR is a government-to-government service and there was no need for awareness campaigns on it as other government departments were already aware of the NPR and its benefits.

5.1.4 Strategy

Samsor (2020: 66) indicate that, “stakeholders should be involved from the beginning of any e-government project, through formal or informal meetings and discussion, including the use of e-mail, chat rooms (Skype and Yahoo, Google), video conferencing and social media (Facebook and Twitter). These ongoing public discussions will help improve e-government awareness which is also a critical factor in the development of e-government.” SARS had a strategy, and it was implemented as planned. All relevant internal and external stakeholders were involved in the development of the strategy. The strategy was called the modernisation programme. It can be said that it was a strategy to move from paper to a paperless system. For the strategy to be successfully implemented there had to be support and commitment from senior leadership. At SARS the senior leadership has a weekly meeting with all connected role players to review the plan. They discuss what will happen over the next six months and there is a living document that records those discussions that continues to be maintained. All divisional heads are part of the strategy.

Ke & Wei (2004: 96) stated that, “it is essential that there is a clear vision and strategy for a coherent and comprehensive e-government project.” Altaee (2017: 18) stated that, “the rapid progress of the e-government project in Singapore, was mainly due to the integrated strategy for e-government, which was adopted by the country's government.” The Smart ID card system falls under the “modernisation strategy”. It is a document that focuses on how to modernise the systems and services that the DHA offers. The Smart ID card system was a huge project involving many stakeholders and if it were not for a detailed strategy the project would not have achieved the success that it did. All the relevant stakeholders were involved with the Smart ID card system project as it had to meet security standards to prevent fraud and corruption. With the green ID document, it was easy for fraudsters to make fake ID documents, whereas with the Smart ID card system, extra precautions were taken to ensure that it is not easy to fake. Sometimes certain improvements on the system could not take place due to budget constraints. COVID also had an adverse impact on many services offered by government and the DHA was not immune to its impact. The strategy was implemented according to the strategy implementation plan. There is a strategy in place to replace the NPR with another modern system which will consider the newer technology. Altameem et *al.* (2006) stated that a strategy is used as a motivation for an organisation to move towards the achievement of its goals. Both the SARS e-filing system and the Smart ID card system fell under the modernisation strategy and the implementation was done according to that plan. The modernisation strategy has a new system for the replacement of the NPR. The NPR itself do not have a strategy.

5.1.5 Top management support

There was definitely top management support for the e-filing system which contributed to its immense success. The number of taxpayers using the e-filing system continuous to increase year on year. The SARS Commissioner fully supports the initiative and talks about it in meetings with its staff. The top management support was visible from the inception of the e-filing system until now which means that even after so many years after implementation there is still a lot of support and enthusiasm for the system.

Normally after a few years of implementation of a project the excitement from top management downwards dies down; which cascades down to other levels, but with this project there is continuous support which filters to all levels in the organisation. The support that was provided by top management included the provision of financial resources, which is essential for any project to be successful. Human resources were provided by procuring the services of experts in the field. There was support for change management during the rising awareness of the project including communicating its benefits and making executive decisions to ensure its success. Regular sessions are held with the divisional head where staff share the concerns expressed by the taxpayers and support and advice is provided to the staff.

AL-Naimat et *al.* (2013: 395-396) stated that, "top management support and commitment from senior management is important and is required throughout the implementation of a project in order to provide and allocate sufficient resources. Support also motives the team to work harder in creating new ideas to speed up the processes and to face obstacles such as resistance to change." The Smart ID card system enjoyed the support of top management which included the Director-General of the DHA. Bi-weekly meetings between the Director-General chairs concerning the "modernisation strategy" were a standing item on the agenda. There was top management support from the inception of the project which made challenges easier to resolve. In the development stage the support was more about monetary value and in the implementation stage there was noticeable top management support. All branch heads attended the meetings representing their functions, thus ensuring that the work was done according to what was; requested. It is essential for the success of any project that there is continuous top management support. Sometimes support is provided in the initial stages and then when the novelty wears off the support also wears off but in the case of the Smart ID card system there was proper and continuous top management support throughout. Top management made sure that all the resources need to design, develop and implement the Smart ID card system like human and financial resources, guidance and direction were made available.

There was top management support to ensure that the project had the necessary resources to keep it operational. Altameem et *al.* (2006: 2) stated that, “top management support was needed throughout the implementation of the e-government initiative and ensured that it was necessary to explicitly and publicly make the e-government initiative a priority.” Both the SARS e-filing system and the Smart ID card system enjoyed the support of top management when challenges were escalated to them to be resolved and the necessary resources were provided. The NPR to a certain extent also has top management support as it also has the resources to remain operational.

5.1.6 Leadership

Even with the several changes of Ministers at SARS, there was constant support for the e-filing system. All the Ministers shared the same passion and commitment for the initiative. One Commissioner who fully supported the initiative later became the Minister of SARS, which meant that the support continued as it was his pet project - so the modernisation programme continued. The Ministers also understood the importance of the project as it would mean that more taxpayers would use the system which in turn; would increase revenue collection and tax compliance. The leadership assisted with issue resolution and decision making if there were problems with the system. They intervened and made sure that the e-filing system was running smoothly when necessary. They also ensured that there were adequate financial and human resources for the project to the successful.

For any project to be successful there have be enough funds available as well as dedicated staff to develop and implement. It is essential to have leadership support with any project as it sets the tone for it to be successful. Herlambang and Susanto (2009: 5) stated that, “strong leadership is an important component that must be owned by the government if e-government is to be successful. The leader becomes the most influential person. Previous research stated that strong leadership is needed to change a culture, which in this case required changing from conventional work to using IT.” E-government involves the coordination of various sectors therefore strong leadership is required to resolved problems as they arise. Strong leadership can speed up the process of implementing e-government (Luk, 2009). Herlambang and Susanto (2009: 5) stated that, “some leadership skills that describe strong leadership include educational background, problem-solving, and relationships. Leaders with an IT education background find it easier to implement IT changes and will be more understanding when taking policy decisions involving IT. The way leaders deal with problems that arise due to IT transformation can illustrate strong leadership. Strong leadership is formed when leaders cooperate with other regional leaders to form a mutually beneficial work environment.”

The Smart ID card system was a top priority for all the Ministers even though there were a number of changes over the years of Ministers for the DHA. The President was also involved with the launch of the initiative. The various Ministers of the DHA over the years understood the importance of the Smart ID card system. Sometimes in government when new leaders come in, they make many changes but with this project they followed the “modernisation strategy” and there was continuity and support for the project. The Smart ID card system was meant to safeguard the national integrity of the country and to protect citizens by preventing usage of fraudulent IDs. The Ministers wanted to expand the services to reach all parts of the country, even the rural areas. The number of mobile trucks was increased to make sure that the service was not limited to people living in the urban areas.

The leadership was the sponsor, advocate, role model and example of the Smart ID card system for both the internal and external stakeholders. Having strong leadership support is a very important success factor for any project. The NPR has leadership support. Altameem et *al.* (2006: 2) stated that, “that strong leadership is a critical precondition for e-government success. It needs a leader who can put the e-government initiative on the agenda and make it happen.” The SARS e-filing system and the Smart ID card system has the leadership to make it happen. Even though there were many leadership changes they were all committed to the initiative as they realised its importance to the country. The NPR had support to a certain extent as it needed to be changed soon to keep abreast with the rapid changes in technology.

5.1.7 Citizen centric

The fact that more and more taxpayers are using the SARS e-filing system is an indication that it is user friendly, easily accessible, and easy to use. SARS implemented enhancements after the system was introduced; taking into consideration the varying needs of the clients, to make it easier for them to use. A survey was sent to SARS clients on their experience and feedback before system enhancements could take place. If users experience problems with the system, they could call the contact centre or visit one of the branches near them to help them complete their tax return. SARS understands that their clients are on different levels of technology therefore they have multiple channels for them to do their taxes. There is a guideline on the SARS website which guides taxpayers on how to submit their tax digitally. SARS also goes to the rural areas to assist people with the completion of their tax. The e-filing system considered the different needs of the clients, and therefore it is considered to be a hugely successful system in South Africa.

The implementation of the Smart ID card system is more user friendly, easy to access and quick to complete for all citizens. The process is more efficient and faster than the previous process which took about 45 days. With the Smart ID card system, it takes 13 days from application to the citizen receiving their ID. It is done through certain banks where a citizen makes an appointment which avoids them having to wait in long queues. The challenge with the ‘digital divide’ is reduced due to the DHA having vehicles that are equipped with Smart ID technology as well as the satellite dish for accessing the network. This allows the DHA staff to drive to schools in rural areas to assist citizens with their applications for the Smart ID card system. There are also mobile trucks which assist people so that they do not have to travel far and queue at DHA offices. This is especially helpful for the poor and the old. The user experience feedback indicates that the Smart ID card system is very accessible and user friendly for the citizens. The Smart ID card system has braille for people who are blind so they can make a distinction between the Smart ID card system and other cards. A lot has been done to make the service more easily accessible to the citizens of the country but there is also still much to do in respect of the ‘modernisation strategy’. All that takes time and in due course all citizens will have a Smart ID card system. It is a continuous process of enhancing the system. The NPR is not citizen centric is it was developed to be a government-to-government service. Altameem *et al.* (2006: 2) stated that, “e-government services should help citizens in a friendly, fast and effective manner.” Both the SARS e-filing system and the Smart ID card system are considered to be citizen centric as they are user friendly and efficient. The NPR is a government-to-government service and does not cater for citizens’ use.

5.1.8 Funding

Apleni and Smuts (2020: 19) stated that, “any e-government initiative requires funding to develop, implement and sustain e-government projects”. AL-Naimat et *al.* (2013: 395) indicated that, “e-government initiatives around the world require funding to start e-government projects. Furthermore, funding is a requirement for the continuation of e-government implementation. Funding is of utmost importance in ensuring good services to citizens by means of excellent service delivery mechanisms.” There is sufficient funding available for the e-filing system. The fact that it was developed, and that enhancements were made indicates that there was adequate funding to do what needed to be done. In government there are always limited funds and departments need to make the best use of the limited funds allocated to them, which was done at SARS with the e-filing system. There were also enhancements done for the visually impaired where the colours and the clarity of the form was changed. There was also a lot of work done on mobile application so that more could be done than previously. Funds are allocated yearly for maintenance and enhancements. SARS has to go through the proper procurement process before funding is approved for any enhancements and maintenance. Every year a business case is done on the plans for the following year, and this is submitted to National Treasury for funding.

Initially, there was adequate funding to pay the service providers but in terms of expansion there are limited funds. The DHA does a business case to National Treasury for funding and that is how funds are allocated. The funds given for the Smart ID card system can only be used for that purpose and not for anything else. The department allocates money yearly for enhancements and maintenance. That means that there are sufficient funds available for the system to function properly; however, there are limited funds for expansion. The offices that provide the Smart ID card system service must meet a certain level of requirements which cost money; therefore, the number of offices cannot be increased at the rate that is needed. In government, funds are always limited; therefore, departments must make the best use of available funds. The NPR has funding to keep it operational as it is a core system and is essential for the functioning of other systems. Altameem et *al.* (2006: 2) mentioned that, "funding is a requirement for attaining goals and for the continuation of e-government implementation." Fortunately, all three e-government services have adequate funding for maintenance and the SARS e-filing system, and the Smart ID card system also have yearly allocations for enhancements which contributes to their success.

5.2 The National Population Register

The reason that the NPR is not as successful as the smart IC card system is because it is an old system that the department calls a legacy system. It was developed before many of the current IT staff in the DHA were even born. It was not a direct e-government service to the citizens of the country, but it is a very important system that the DHA uses daily. It is a system that gets fed information from other systems and also feeds information into other systems. The sole purpose of the NPR is to store the biographical information of all citizens which is why is such an important system for the country. There are no service providers involved with the enhancements of the NPR. It is hosted by the SITA. However, it does need funds for maintenance and enhancements, like any other system. Funds are allocated for the enhancements to the NPR. If it is discontinued, it means that other systems would not link to the NPR which is a core system in the DHA. The IT language that is used is outdated and there are scarce resources with that kind of knowledge. The DHA is in the process of replacing the NPR with the National Identification System.

5.3 Chapter Summary

The analysis and discussion chapter explained how each of the eight (Altameem et *al.*, 2006) factors have contributed to all phases of the SARS e-filing system and the Smart ID card system from inception to implementation and post implementation for maintenance and enhancements. What was very interesting was that the same service providers were used for the two most successful e-government initiatives in South Africa. SARS went through the process of implementation first and thereafter, the leadership from the DHA approached SARS for assistance with the design, development and implementation of the Smart ID card system.

The DHA did not have to go through the same challenges that SARS went through as they had benefited from the learning experience of SARS. Both SARS and the DHA had adequate technical staff for the e-government initiatives. Robust change management took place, and it was sustained. Strategies were implemented as per the plan. Creative awareness strategies were used for the SARS e-filing system and the Smart ID card system. There was strong top management support throughout the process, even with the change of Ministers, there continued to be continuity in terms of the support provided for the SARS e-filing system and the Smart ID card system, both e-government initiatives considered the various needs of the clients and sufficient funds were provided for their implementation and yearly maintenance.

The NPR system is not a direct e-government service to the citizens of the country. However, it is still an integral system of the country that stores confidential data on each citizen. Other systems feed into the NPR and information from the NPR feeds into other systems, which the DHA cannot do without. Therefore, the department is in the process of replacing the system with a modern system. Not all eight factors from Altameem et *al.* (2006) were used for the NPR system. The NPR does not have the same contributing factors as the Smart ID card system, such as change management, an awareness, strategy and citizen centric operation, due to its being a legacy system

Chapter Six: Conclusion and Recommendations

6. Introduction

E-government services are becoming more frequently used, especially since the start of COVID-19. Ceesay and Bojang (2020) highlighted that countries globally did not have a choice to implement e-government. It was a requirement. During the COVID-19 pandemic, countries adopted specific e-government practices. For instance, many countries intensified the use of various e-government services, such as adopting centralised websites, and social media platforms to engage citizens and deliver essential medical and food supplies. Apart from COVID-19; there is a need for countries to keep abreast with the rapid changes taking place globally, in terms of technology, including South Africa. Considering that South Africa is moving towards the 4IR, the researcher decided to find out what contributes to the successful development and adoption of e-government initiatives, so that this research could assist with ensuring that future e-government systems are successful. Each chapter of this research will be briefly summarised in this final chapter and based on the research findings; recommendations will be presented, followed by suggested future research and an overall conclusion.

The research purpose as stated in chapter one, will be analysed and linked to the findings obtained from the interviews. The research purpose which is revisited in section 6.2. from Chapter one of this research indicated the two research questions that the study sought to answer and section 6.2 provides the answers to the research questions.

6.1 The research purpose

This research sought to determine the factors that are common across the more successful e-government initiatives and to understand what the factors are that are found in the more successful initiatives but are not found in the less successful initiatives. Two successful e-government initiatives were used for this research, namely the SARS e-filing system and the Smart ID card system. The less successful system is the NPR. The researcher was interested in finding out why there are very successful and less successful e-government initiatives in the DHA. Surely both the initiatives would have the same resources and support but what are the reason for one being more successful than the other. The researcher went through numerous articles and decided to use the Altameem et *al.* (2006) model which has twenty-four factors that contribute to the successful implementation of an e-government project. The researcher decided to use eight factors from the twenty-two which are applicable to the South African environment, as it is still a developing country.

6.2 Summary of the research chapters

This section provides a brief overview of each chapter in this research.

The first chapter of the study indicated that South Africa has been deploying various e-government systems for more than two decades. However, these systems still pose significant challenges (Abu-Shanab & Khasawneh, 2014). South Africa is a developing country with limited resources at its disposal. Therefore funds must be used for the benefit of the citizens of the country. This formed part of the problem statement for the research, within the South African context. We live in a country where there is a huge digital divide. There are people who live in the cities and have access to all the services they need, including the internet; and conversely, there are people who live in the deep rural areas where basic services are not easily accessible and where some people do not even have access to the internet. The research purpose was formulated within the context of South Africa, amid this digital divide conundrum. Arising from the research purpose, two research questions were posed which would be answered in this research. The expected outcome of the research was explained which was to obtain a deeper understanding of the existing academic literature; more specifically on factors influencing the success of future e-government initiatives; especially as South African is moving towards the 4th Industrial Revolution. This research is justified in the hope that the findings from this study will be valuable for the implementation of the 4IR in South Africa as envisioned by the President in his State of the Nation Address in 2020. The research had two questions.

1. Were the eight factors referred to be Altameem et *al.* (2006) found in three selected e-government initiatives?

The eight factors from Altameem et *al.* (2006) were all found in the SARS e-filing system and the Smart ID card system. They were actively used during the adoption of the e-government initiatives. The researcher found that for the NPR there were only three factors that were linked to the NPR, namely: the technical staff as it is a legacy system requirement, top management support and leadership support as all three ensure that the necessary resources are provided to ensure that the system is operational. There is a strategy for the modernisation project but not specifically for the NPR itself which is funding for the maintenance of the NPR.

2. What are the factors that differentiate the more successful from the less successful e-government initiatives?

The researcher focused on the NPR as the less successful e-government initiative in the DHA, which also has a highly successful e-government system called the Smart ID card system. The NPR is a legacy system which means it is an old system which uses outdated IT languages, which are not used by the younger generation of the current IT staff. The skills for these IT languages are scarce. As it is an old system not all the factors used for the successful Smart ID card system were used for the NPR. Although it still has top management and leadership support it is not as extensive as for the Smart ID card system.

There is an overall strategy to modernise the old systems at the DHA but not an intensive strategy like the one used for the Smart ID card system and not specifically for the NPR. There is funding and in-house IT staff available. However, it is not as much as for the Smart ID card system but enough to ensure it is maintained; otherwise, the NPR would not be functional. There is no change management as it is an old system, no awareness programmes as it is not a direct e-government service to the citizenry and citizen centric was not considered as it is not a direct e-government service to the citizens however it is a core system for the country which stores highly important information about the citizens.

Chapter two focused on past literature on e-government and the theoretical framework used to guide the research. The theoretical framework was taken from Altameem *et al.* (2006) factors on successful e-government implementation. For the purpose of this research eight factors were selected from the twenty-four factors.

Chapter three explained the methodological approach used for the study. It is a qualitative study where purposive sampling was used. Ten officials that were knowledgeable on the e-government initiatives from SARS and the DHA were selected to participate in the study. Unfortunately, the researcher did not obtain twenty participants for this study as the officials from DHA indicated that they were very busy and did not have time.

Chapter four focused on the presentation of the findings which included the responses obtained for the three e-government initiatives. The presentation was in the form of narrative text. Chapter five looked at the analysis and the discussion in chapter four and how it resonated with the eight factors from Altameem *et al.* (2006). Lastly, chapter five concludes the research and provides recommendations on how to successfully implement e-government in South Africa.

6.3 Recommendations

The following are some recommendations for the successful adoption of e-government service for South Africa. Each country is different due to the culture, economic factors, and political situation; therefore, there is no ‘one size fits all’.

6.3.1 Technical staff

For an e-government system to be successful it is essential to have adequate skilled staff to design, develop and maintain the system. It is recommended that professional service providers who have the relevant experience be appointed. There must be skills transfer so that the departmental IT staff can take over with the maintenance and repairs so that the cost is minimised. It is also important for staff employed in government departments to have the necessary IT skills and knowledge as the country is moving towards the 4IR. Wamoto (2015) stated that an innovation with substantial complexity requires more technical skills and needs greater implementation and operation efforts to increase its chances of adoption. Wamoto (2015) insisted that an e-government adoption needs a number of technical staff to help implement it. Many governments have suffered from a lack of technical staff and are therefore a very important component in e-government implementation. Similarly, the competency factor was considerably weak and was therefore classified as a constraint in e-government implementation in Kenya. According to the OECD (2005), training of information professionals should focus not only on methods and techniques for the development and provision of information and communication services, but also on relevant management skills to ensure the best use of technologies. Torki, Mohamed and Sarmad (2006) explained that an innovation with substantial complexity requires more technical skills and needs greater implementation and operation efforts to increase their chances of adoption. E-government adoption needs a number of technical staff to help implement it. Many governments have suffered from lack of technical staff, and it is therefore a very important component of e-government implementation.

6.3.2 Change management

Change management is an essential component for any successful project. When a new project is implemented, there has to be a change management process to assist all role players to understand the need for change and to accept it. Change must also be sustained after being implemented, so that people do not revert to the old way of doing things. Normally, there is a lot of excitement when something new is implemented, but after a while it dies a slow death which should not happen. In the case of the two more successful e-government initiatives, change management was sustained through training programmes, advertisements and placards. Apleni and Smuts (2020) advised that a well-designed communication and change management strategy needs to be developed and implemented.

Components of this communication and change management strategy include ICT education and ICT impact, as well as a clear vision and strategy for e-government implementation. Janja (2011) argued that change management in e-government implementation is a very complex issue. However, change management has not been considered enough because e-government is predominantly seen only as a technology mission, not an organisational transformation issue. Changes expected are mostly caused by policies and legislation, public private partnerships and finally a huge resistance to change. Change management is a structured approach to transitioning individuals, teams and organisations from their current state to a desired future state.

6.3.3 Awareness

There must be awareness programmes when a new system is implemented so that people know about it. People need to know about the benefits of the new system so that they will want to use it. These awareness programmes must be sustained as there are always new users such as young people wanting ID cards or becoming taxpayers. The success of both e-government systems can be attributed to a sustained awareness programme. Wamoto (2015) emphasised that raising awareness of the e-government initiative must be ongoing, understanding and skills of those involved in e-government projects. This must include promotion of the benefits of the projects. In the Kenyan context, the study found out that employees are not well sensitised on e-government which should not be the case, because these employees are the super users of e-government systems and hence they need to be sensitised as early as possible. Khanh (2014) suggested that some of the awareness that could be used is using mass media to introduce the concept of an e-government system for people in the public sectors, conducting seminars or workshops to encourage the public sectors' workforce to apply the concepts in their daily operations. A package of activities could be delivered that includes (Heeks, 2001b) seminars and training workshops, web-based documentation, individual meetings, and support for monitoring and project evaluation.

6.3.4 Strategy

Any major project requires a detailed strategy, together with a detailed implementation plan. All relevant stakeholders must be involved from the beginning of an e-government project, so that all inputs can be incorporated into the strategy. The project must be monitored continuously to ensure that it is implemented according to the plan. Wamoto (2015) pointed out that an important factor for e-government implementation is strategy and said that success in providing public services depends heavily on the strategy undertaken or adopted. Strategy relates to the availability of an overall vision and a master plan for good governance and for e-government project implementation. Kenya has taken a leading role in e-government implementation, compared to other countries in East Africa. Kenya has an approved ICT master plan and an e-government strategic plan which is a roadmap to guide improvements in online services to the citizens of the country. Strategy works hand in hand with vision, and therefore e-government implementation begins with establishing a broad vision, which thereafter forms a goal of any organisation (Wamoto, 2015). Ndou (2004) advised that collaboration and coordination must be stimulated among government departments and agencies to increase efficiency and effectiveness in process handling.

Addressing challenges and opportunities in strong partnership with private organisations, major donors, research institutions and universities is important for supporting cross fertilisation of ideas, solutions and knowledge. The collaboration between SARS and the DHA worked very well for the implementation of the Smart ID card system. Wamoto (2015) emphasised the importance of establishing partnerships; particularly with others who have undertaken similar initiatives. Successful e-government considerations need a clear vision and strategy that leads and supports the entire e-government implementation process and focuses on the realisation of specific and well-articulated e-government goals (Apleni & Smuts, 2020).

Previous studies showed that it is imperative to have an overall well thought out and robust strategy for establishing an e-government vision at the national level (Irani, Love, & Jones, 2008).The plan of action for e-government, according to Lowery (2001) should include the following: a clear definition of e-government that covers key areas to be addressed and identification of all customers; a vision that is easily understood and succinctly expresses the concept of and plans for e-government; specific goals and objectives that can be monitored and measured; and identification of policies necessary to support e-government.

To reach the e-government vision in the UK, the government has developed a cohesive strategy with strong leadership and a clearly articulated action plan, which leverages the resources of the private sector (Accenture, 2003; Weerakkody & Dhillon, 2008).

6.3.5 Top management support

There must be top management support to ensure that a project has the necessary resources to ensure the successful adoption of any e-government system. When challenges are experienced, they can be escalated to top management to resolve the issues in time. There must be regular meetings with top management and staff so staff can appreciate the support and continue to do their best. Apleni and Smuts (2020) stated that top management and government support is mainly focused on civil servants and visible government support and called on citizens to embrace e-government service delivery innovation. Elnaghi, Alshawi, and Missi, (2007) indicated that strong top–down management can speed up the process of e-government implementation, promote coordination within and among agencies and help reinforce good governance objectives.

The fact that e-government has multiple dimensions is a complex issue. Each dimension demands strong leadership, good strategy, cross-coordination, and know-how, all combined with a technology strategy to take the vision to reality. With goals to facilitate easier, less time consuming, and more interactive engagement with government departments, and to make the business more effective and efficient through the use of technologies; to be successful in e-government implementation, leaders must manage across networks and leverage partnerships and resources across organisational boundaries.

Top management needs to publicly and explicitly identify a project as a top priority (Wee, 2000 as cited in Khanh, 2014). Senior management must be committed with its own involvement and willingness to allocate valuable resources to the implementation effort (Holland, Light & Gibson, 1999). This requires providing the necessary people for implementation and allowing an appropriate amount of time to get the job done (Roberts & Barrar, 1992). Top management exercises control to ensure the implementation of e-government, in accordance with planning. Managing existing resources to realise agreed goals provides support and motivation to company members to realise organisational goals (Herlambang & Susanto, 2009).

6.3.6 Leadership

Leadership support contributed immensely to the success of the two more successful e-government systems. Even though there were many changes of leadership in both SARS and the DHA they were still continuity in the support of the two e-government systems. The leaders understood the important of the two systems and knew what a difference they would make in the lives of the citizens of the country. Leadership support was provided from inception to date, for both the systems. Some lessons to be learnt from South Korea were provided by Chung (2020) who stated that South Korea is one of the leading countries in respect of e-government.

Many of Korea’s e-government practices have been introduced to the world as best cases and have received worldwide acknowledgement. Therefore, South Korea is regarded as the world’s best country in the field of e-government. Chung (2020) further stated that the most important of the country’s success factors was the leadership of the President. A special committee for e-government was established as a special committee under the Presidential Commission on government innovation, which is an executive branch committee. Therefore, the special committee for e-government reported to the President as an independent body. The President of South Korea from 2003 to 2007 stressed the pursuit of e-government throughout the five years, starting from the early days his leadership.

Chung (2020) pointed out that the Roh Moo-hyun administration took office in 2003. It set out its administrative agenda using IT, by promoting e-government as the presidential agenda. In addition, a powerful e-government governance body was established falling directly under the President; and Chung allocated substantial budgets in e-government initiatives. Herlambang and Susanto (2009) identified strong leadership as an important component that must be owned by the government if e-government is to be successful. The leader becomes the most influential person. Previous research stated that strong leadership is needed to change a culture, in this case from conventional work to using IT (Kifle and Cheng, 2009). Strong leadership is needed to overcome problems that often arise in e-government, because it involves coordination of various sectors. Strong leadership can accelerate the process of implementing e-government (Luk, 2009). Herlambang and Susanto (2009) revealed that some leadership skills that describe strong leadership include educational background, problem-solving, and relationships. Leaders with an IT education background will find it easier to implement IT changes and will be more understanding regarding the adoption of IT policies. The way leaders deal with problems that arise due to IT transformation can illustrate strong leadership. Strong leadership is formed because leaders cooperate with several other regional leaders to form a mutually beneficial work environment.

6.3.7 Citizen centric operation

It is essential to understand the needs of various citizens so that the correct services can be provided. The design of any e-government system must incorporate the needs of the citizens. In South Africa there is a digital divide where the citizens in cities have better access to technology and services compared to citizens living in rural areas. The digital divide is often quoted as a reason why e-government cannot become universal and other channels have to be kept open (Margetts, 2006). In Australia, O'Sullivan and Walker (2018) asserted that non-governmental organisations are playing a significant role in closing the digital divide gap, by proactively building literacy skills and supporting the establishment of e-mail addresses and myGov accounts. However, a question that arises is whether it is acceptable to rely on charities to do the work of reconfiguring citizens' relationship with the state. It is clear from their research that without non-governmental organisations, few people living in remote Aboriginal communities would have ongoing, smooth access to Australia's social services system. Rural connectivity projects have strengthened collaboration among municipalities and fostered partnerships between public and private actors, as in other countries with high ICT (Nawafleh, Obiedat & Harfoushi, 2012).

Fraser (2009) stated that Canada's government has taken steps to address the issue of accessibility to e-government in two ways. Firstly, it has developed Community Access Points

(CAPs) throughout Canada. This initiative, started in 1995, was intended to provide affordable internet access to all citizens in every province and territory (Industry Canada, 2008). Secondly, the Canadian government committed ‘to work with the private sector to determine the best ways to make broadband internet access available to all communities in Canada by the year 2004’. (The Speech from the Throne, 2001, para. 33 as cited in Fraser, 2009). South Africa can adopt a similar approach by getting support from non-governmental organisations to close the digital divide. People with disabilities need to be considered in the design of any system. Some of the initiatives taken by Australia to facilitate internet access for the disabled were reported by Teicher and Dow (2002). These ranged from text-based browsers and braille displays for the visually impaired to captioning of video and audio clips for the hearing impaired. It is also important to have e-government services that accommodate all eleven official languages in South Africa.

Research shows that the Scandinavian countries lead in digital development amongst marginalised populations by enabling the reduction of the digital divide (Emanuela, Gaia & Cerati, 2020) For example, the 5G broadband programme for rural areas in Denmark (European Commission, 2021) and the Rural Fibre Programme in Iceland (Singh and Chobotaru, 2022) led to better outcomes in this region in reducing the digital divide and improving access to their marginalised population.

6.3.8 Funding

Funding is of the utmost importance for the success of any project or service. Funds must be made available for service providers and for maintenance and enhancements. If funds are not sufficient or not available, there will not even be a project or service. Both these e-government systems must be continuously enhanced to keep abreast with changes taking place. Technology is rapidly changing, and the country has to keep up with the changes taking place globally. Wamoto (2015) asserted that funding is a critical factor for both starting e-government initiatives and continuing their implementation. Therefore, the importance of funding in providing excellent service cannot be over emphasised. It is the glue that holds the building, collections, and staff together, and allows for attaining of goals. Furthermore, funding is essential in providing excellent service to citizens through the use of excellent service delivery mechanisms. Many e-government projects in resource-constrained environments eventually fail because of a lack of strategic, sustained and clearly articulated funding models (Bwalya & Mutula, 2015). E-government keeps evolving, and to keep pace with the ever-evolving technology platforms, there is a need for a continuous supply of monetary resources to drive innovations and re-engineering of business processes (Bwalya, 2018).

Ojha and Pandey (2017) pointed out that most of the e-government projects across the globe adopt the traditional project financing approach where the entire project is funded through government budgetary resources and operated by the government. However, as public financial resources become scarcer, other options need to be explored. Full privatisation or outsourcing of public services to the private sector is an option. This option can help with getting full project funding from private sector service providers. However, control over the services provided, the tariff charged, and movement of assets into the hands of the private vendor may not be in the interests of the public.

Ojha and Pandey (2017) indicated another option of operating and funding large projects called the public private partnership (PPP) model. In their study they found that the PPP had a significant impact on strategic management, senior level commitment, and eventual success of projects. projects under the PPP based strategic financing approach ensured financial viability for the entire project period, involved contractual arrangements for sharing of technical and project risks, a legal commitment for the entire project period, and developed new and independent governance structures as essential requirements of project development guidelines.

6.4 Limitations

According to Creswell (1998), limitation is a potential weakness in the study. A major limitation for this study is that there will only be a viewpoint from government officials, and it does not take other government stakeholders, i.e., citizens into account. The implication is that there would not be the users' first-hand experience with the SARS e-filing system and the Smart ID card system to verify its success. Another limitation is the sample size: the researcher will be making assumptions from three e-government initiatives and then deriving conclusions from that data and applying it to the entire population of e-government initiatives. Lastly, the researcher experienced difficulty in obtaining willing participants for the interview, especially from the DHA. The researcher sought permission from the Ethics Committee to send the officials a questionnaire to respond to in their own time, but unfortunately, they were still not willing to participate. Only five officials from the DHA participated in the interview and questionnaire.

6.5 Contributions of the study to management practice

The adoption of e-government services is essential in any public sector and this research has come up with the critical factors influencing the successful adoption of e-government initiatives in South Africa. South Africa is a developing country with limited resources and infrastructure which were considered when the eight factors were recommended. It is of utmost importance that managers in the public sector take the eight factors into consideration when developing and implementing e-government services to ensure that it is successful.

6.6 Suggestions for further research

Future researchers may want to look at the system that the DHA tried to implement but it did not take off. It was a direct e-government service to the citizens. The e-government system was called “Who am I online” this could be compared to the Smart ID card system to determine what factors led to the success of one and the failure of another in the same department.

In a few years it would be interesting to find out if the eight factors especially awareness, top management support and leadership support are still contributing factors to the e-government systems and if these systems used in this study are still successful.

There are always new e-government systems being implemented however many of them fail, future researchers can determine what are the causes of the failures and if these eight success factors were utilised in the design, development and implementation of the e-government systems.

6.7 Conclusion

It was very interesting to note that all eight contributing success factors from Altameem *et al.* (2006) were used extensively in the design, development and implementation of the SARS e-filing system and the Smart ID card system. The NPR is a legacy system which is old and outdated and is also not a direct e-government service to the citizenry. Four out of eight contributing success factors were mentioned by Altameem *et al.* (2006) for the NPR system. The awareness, change management, and citizen centric operation were not utilised due to it not being a direct e-government service. The technical staff, top management support, leadership support and funding were used to a limited extent. There is a modernisation strategy but not specifically for the NPR but to replace various legacy systems with new systems. Recommendations were also provided for government departments in the South African public sector to ensure successful implementation of e-government initiatives. Recommendations were sourced from research conducted on developed countries where e-government has been successfully implemented; however, each e-government initiative is different and there is no “one size fits all” approach.

7. List of references

Abdalla, S. (2012). An e-government adoption framework for developing countries: a case study from Sudan (Doctoral dissertation, Cranfield University).

Abu-Shanab, E., and Khasawneh, R. (2014). E-government adoption: The challenge of digital divide based on Jordanians' perceptions. *Theoretical and Empirical Research in Urban Management*, *9*(4), 5–19.

Accenture. (2003). eGovernment leadership: Realizing the vision. Available at http://www.accenture.com/

Akbulut, A. (2003). *An investigation of the factors that influence electronic information sharing between state and local agencies.* Louisiana State University.

Alatrash, R., Albskri, A., and Boskovic, A. (2016). Implementation of e-government in Libya. *14th International Scientific Conference on Economic and Social Development Belgrade, Serbia, 13-14 May 2016.*

Ali, A.H. (2013). Relationship with e-government program automation system of government action. *Kut Journal for Economics Administrative Sciences* (9), 85-111.

AL-Naimat, A.M., Abdullah, M.S., and Ahmad, M.K. (2013). *The critical success factors for e-government implementation in Jordan*. Proceedings of the 4th International Conference on Computing and Informatics, ICOCI 2013. Sarawak, Malaysia.

Alshehri, M., and Drew, S. (2010). Implementation of e-Government: Advantages and Challenges Conference proceedings.

Al-Shehry, A. M. (*2008). Transformation Towards E-Government in the Kingdom of Saudi Arabia: Technological and Organisational Perspectives.* Doctoral thesis, De Montfort University, Leicester, United Kingdom.

Altaee, M.A.H. (2017). The Impact of the Critical Success Factors in the Maturity of E-Government Applications A Case Study in the “Traffic Department” in Jordan. International Journal of Managerial Studies and Research. 5(2): 13-24.

Altameem, T., Zairi, M., Alshawi, S. 2006. *Critical success factors of e-government: a proposed model for e-government implementation.* Proceedings Conference: Innovations in Information Technology Conference; Dubai; 501–505.

Adeyemo, A. (2011). E-government implementation in Nigeria: an assessment of Nigeria’s global e-government ranking. *Journal of Internet and Information System*, 2(1), 11-19.

Anthopoulos, L., Reddick, C. G., Giannakidou, I., & Mavridis, N. (2016). Why e-government projects fail? An analysis of the Healthcare.gov website. *Government Information Quarterly*, *33*(1), 161–173.

Apleni, A and Smuts, H. (2020). *An e-Government Implementation Framework: A Developing Country Case Study.* Springer Nature Switzerland. 15–27.

Australian Government Information Management Office (AGIMO). (2006). *2006 e-Government Strategy, Responsive Government: A New Service Agenda*. Canberra: AGIMO.

Asogwa, B. E. (2012). Electronic government as a paradigm shift for efficient public services:

Opportunities and challenges for Nigerian government. *Libr. Hi Tech*, 31(1), 141–159.

Backus, M. (2001). *E-governance in Developing Countries.* IICD Research Brief, 1.

Basu, S. (2004). E-Government and Developing Countries: An Overview*. International Review of Law Computers and Technology*. 18(1): 109-132.

Behrens, C. and Kholid, A. (2011). Comparative Study Governance in Europe. *Workpaper for the APPSI Forum* 8, 10/12/2011 in Semarang.

Behrens, C. (2012). Ed. Better Governance for Indonesia. Jakarta.

Behrens, C. (2012). Success Factors for an E-Government Strategy: Austrian Experiences, Indonesian Challenges. *Jurnal Studi Pemerintahan. 3(1).*

Beneke, J.H. (2018). *South Africa: The Long Walk to Broadband Freedom*

Bhuiyan, S. H. (2010). E-government in Kazakhstan: Challenges and its role to development. Public Organisation Review, 10(1), 31–47.

Boin, A., Brock, K., Craft, J., Halligan, J., Hart, P., Roy, J., Tellier, G., and Turnbull, L. (2020). Beyond COVID-19: Five commentaries on expert knowledge, executive action, and accountability in governance and public administration. *Canadian Public Administration,* 63: 339–68.

Booz Allen Hamilton Inc. (2002). International e-economy benchmarking: the world's most effective policies for the e-economy. United Kingdom.

Braa, J., and Hedberg, C. (2000a). *Developing district-based health care information systems.* Paper presented at the Information Flows, Local Improvisations and Work Practices, Proceedings of the IFIP WG9.4 Conference, Cape Town.

Braa, J., and Hedberg, C. (2000b). *Developing district-based health care information systems: The South African experience.* Paper presented at the Proceedings of IRIS 23. Laboratorium for Interaction Technology, University of Trollhättan Uddevalla.

Bradshaw, D., Dorrington, R.E., Laubscher, R., Moultrie, T.A., and Groenewald, P. (2021). Tracking mortality in near to real time provides essential information about the impact of the COVID-19 pandemic in South Africa in 2020. *SAMJ,* 111(8).

Breckenridge, K. (2008). *The elusive panopticon: The HANIS project and the politics of standards in South Africa.* Playing the ID Card, 39–56.

Breckenridge, K. (2014). *The Book of Life: The South African Population Register and the Invention of Racial Descent, 1950-1980.* University of Western Cape.

Breckenridge, K. (2019). The global ambitions of the biometric anti-bank: Net1, locking and the technologies of African financialization. *International Review of Applied Economics,* 33(1), 93–118.

Briggs, S. (2021). *Connectivity in SA: the numbers you need to know.* IT-Online. IT Industry News. Daily. 12 July 2021. Available from https://it-online.co.za/2021/07/12/connectivity-in-sa-the-numbers-you-need-to-know/ (Accessed on the 8th November 2023).

Brown, H. D. and Thompson, S. (2011), "Priorities, policies and practice of e-government in a developing country context: ICT infrastructure and diffusion in Jamaica", *European*

Journal of Information Systems. 20, 329-342.

Businesstech. (2022) SARS was ‘systemically and deliberately weakened’ - state capture findings. Available from https://businesstech.co.za/news/finance/548718/sars-was-systemically-and-deliberately-weakened-state-capture-findings/ Accessed on the 19th January 2023.

Bwalya K. J. and Healy, M. (2010). Harnessing e-Government Adoption in the SADC Region: a Conceptual Underpinning. *Electronic Journal of e-Government,* 8(1): 23 – 32.

Bwalya, K.J. and Mutula, S.M., 2015, ‘The Gamut of e-government research, design and implementation: Key issues’, in K.J. Bwalya and S.M. Mutula (eds.), Handbook of research on electronic democracy and government, p. 426, Idea Group Publishing, Hershey, Pennsylvania.

Bwalya, K.J., 2018, ‘E-Government Funding Frameworks’, the e-Government Development Discourse: Analysing Contemporary and Future Growth Prospects in Developing and Emerging Economies, pp. 111-130, AOSIS, Cape Town.

Canada Information Office (now, Communication Canada). (2002) *Listening to Canadians: Communications Survey.* Ottawa. Spring, pp. 31.

Cambridge Dictionary. (2021). *Success meaning in the Cambridge English Dictionary*. [online] Dictionary.cambridge.org. Available at: <http://dictionary.cambridge.org/dictionary/english/occupation> (Accessed 5 January 2021).

Ceesay, L.B., and Bojang, M.B.S. (2020). Embracing E-Government during the Covid-19 Pandemic and Beyond: Insights from the Gambia. *Global Journal of Management and Business Research: An Administration and Management*, 20(13) Version 1.0.

Chan, C.M.L., Lau, Y., and Pan, S.L. (2008). E-government implementation: A macro analysis of Singapore's e-government initiatives. *Government Information Quarterly*, 25: 239–255.

Charih, M. and Robert, J. (2004). Government On-line in the federal government of Canada: the organisational issues. *International Review of Administrative Sciences*, 70(2):373–384.

Chung, C.S. (2020). Why and how South Korea became the world’s best e-government country: focusing on the leadership of President Roh Moo-Hyun*. Current Politics and Economics of Africa,* Nova Science Publishers, Inc. 29(4).

Ciborra, C. (2005). Interpreting e-government and development: Efficiency, transparency or governance at a distance. *Information Technology and People,* 18(3), 260−279.

Cloete, F. (2009). Evidence-based policy analysis in South Africa: Critical assessment of the emerging government-wide monitoring and evaluation system. *South African Journal of Public Administration*, 44(2), 293-311.

Cloete. F. (2012). E-Government lessons from South Africa 2001-2011: Institutions, state of progress and measurement. *The African Journal of Information and Communication.*

Constitution of the Republic of South Africa, 1996 - *Chapter 2: Bill of Rights.*

Creswell, J. W. (1994). *Research design: Qualitative & quantitative approaches*. Thousand

Oaks, CA, US: Sage.

Creswell, J. W. (1998). *Qualitative Inquiry and Research Design*: *Choosing Among Five Traditions*. Thousand Oaks, CA, US: Sage.

Dada, D. (2006). The failure of e-government in developing countries. *The Electronic Journal on Information System in Developing Countries,* 10: 3-5.

D'auray, M. (2003). The Dual Challenge of Integration and Inclusion, *Journal of Political Marketing*, 2:3-4, 31-49, DOI: 10.1300/J199v02n03_03.

Department of Communications Information Technology and the Arts, *Government Online: The Commonwealth Government's Strategy*, 2000, http://www.noie.gov.au/projects/egovernment/Archive/GovOnlineStrategy.htm.

Department of Home Affairs. (2019). *White Paper on Home Affairs.* Pretoria, South Africa.

Department of Home Affairs. (2019/20). *Annual Report*. Pretoria, South Africa.

Department of Home Affairs. (2021/22). *Annual Report*. Pretoria, South Africa.

Department of Home Affairs. (2020). *Strategic Plan 2020-2025*. Pretoria, South Africa.

Department of Home Affairs. (2020). Draft Official Identity Management Policy (Public Consultation Version). http://www.dha.gov.za/images/PDFs/Draft_Official_Identity_Management_Policy_-_Gazette_Version_of_22122020.pdf

Dlamini, P., and Quintal, G. (2019). *Sars head of IT Mmamathe Makhekhe-Mokhuane resigns*. Sowetan Live. Accessed from https://www.sowetanlive.co.za/news/2019-10-02-sars-head-of-it-mmamathe-makhekhe-mokhuane-resigns/ on the 19th January 2023.

Drum Digital. (2014). Crooked priests to blame- Gigaba. Available at https://www.news24.com/drum/News/crooked-priests-to-blame-gigaba-20170728. Accessed on the 19th of January 2023.

Dunleavy, P., Margetts, H., Bastow, S., and Tinkler, J. (2008). Australian e-Government in Comparative Perspective. *Australian Journal of Political Science,* 43(1): 13 – 26.

Elkadi, H. (2013). Success and failure factors for e-government projects: A case from Egypt. *Egyptian Informatics Journal*. 14:165-173.

Elnaghi, M., Alshawi, S., and Missi, F. (2007). A Leadership Model for e-Government Transformation. *Proceedings of European and Mediterranean Conference on Information Systems.* June 24-26, 2007, Polytechnic University of Valencia, Spain.

E-Iraq. National e-Governance Action Plan. Available http://www.egov.gov.iq/egov-iraq/resources/doc/egif-plan/plan2012-2015.pdf. 2012

Emanuela, S., Gaia, A., and Cerati. G. (2020). The gray digital divide in social networking site use in Europe: Results from a quantitative study. Social Science Computer Review 40: 328–45.

Engelbrecht, L. (2007). Home Affairs opens up. Available: https://www.itweb.co.za/content/rW1xL75GoOEqRk6m. Accessed 5th January 2021.

European Commission. (2021). Digital Agenda Key Indicators [Data Set]. Brussels: Directorate-General for Communications Networks, Content and Technology. Available online:

http://semantic.digital-agenda-data.eu/dataset/digital-agenda-scoreboard-keyindicators (Accessed on 23 December 2021).

Fang, Z. (2002) e-government in Digital Era: Concept, Practice and Development. *International Journal of the Computer*, 10(2), 1-22.

Farelo, M. & Morris, C. (2006). *Status of e-government in South Africa. IST Africa Conference,* Pretoria, South Africa, 7-9 May 2006, 1-12.

Feng, L. (2003). Implementing E-government Strategy is Scotland: Current Situation and Emerging Issues. *Journal of Electronic Commerce in Organisations* 1(2), 44-65.

Fraser, C. (2009). E-government: The Canadian Experience. *Dalhousie Journal of Interdisciplinary Management*, 5 (2009).

Gichoya, D. (2006). *Factors affecting the success and failure of government ICT projects in developing countries*. Paper Presented at the 2nd International Conference on e-government, 11–12th October 2006, Pittsburgh, USA.

Gil-García, J.R. and Pardo, T.A. (2005). E-government success factors: Mapping practical tools to theoretical foundations. *Government Information Quarterly*. 22: 187–216.

Gillwald, A., Esselaar, S., Burton, P., & Stravrou, *A. (2005). Towards an e-index for South Africa: Measuring household and individual access and usage of ICT*. Available at http://regulatioeonline.org/content/view/404/31/. Accessed 1st July 2005.

Government Gazette. (2017). Digitising Government Services. South Africa.

Government of Canada (1994a) 'Plan directeur pour le renouvellement des services governmentaux à l'aide des technologies de l'information', URL: http://www.intergov.gc.ca/docs/fed/blueprint/indexf.html.

Government of Canada (2000b) *Enjeux et défis de communication auprès des Canadiens et des Canadiennes peu alphabétisés*. Ottawa: Canadian Information Office.

Grant, G. and Chau, D. (2005). Developing a generic framework for e-government. *Journal of Global Information Management*. 13(1): 1-30.

Guha, J. & Chakrabarti, B. (2014). Making e-government work: Adopting the network approach. *Government Information Quarterly*, *31*(2), 327–336.

Gunawong, P., and Gao, P. (2017). Understanding e-government failure in the developing country context: A process-oriented study. *Information Technology for Development*, *23*(1), 153–178.

Hameed, S., & Al-Shawabkah, A. (2013). Role of e-government in improving organizational performance in the civil status and passports department of Jordan. *Developing Country Studies*, *3*(5), 50-64.

Heeks, R. (2001), "Understanding e-governance for development", Working Papers Series, No. 12/2001, Institute for Development, Policy and Management Information Systems, Technology and Government, University of Manchester, Manchester, available at: http://idpm.man.ac.uk/idpm/igov11abs.html

Heeks, R. (2001b). *Building e-Governance for Development: A Framework for National and Donor Action.* I-government working paper series, Institute for Development Policy and

Management, University of Manchester, pp. 1-31

Heeks, R. (2002b). *Success/Failure Case Study No.24: The National Data Bank Project: An Expensive Lesson for Bangladesh.* Retrieved 25 July 2011, from http://www.egov4dev.org/success/case/ndb.shtml

Heeks, R. (2008). *e-Government Success/Failure: Definitions.* Retrieved 1 December 2013, from http://www.egov4dev.org/success/sfdefinitions.shtml#_

Heeks, R. & Molla, A. (2009). Compendium on impact assessment of ICT-for-development projects. Manchester, UK: University of Manchester Centre for Development Informatics. Technology and Social Change Group (TASCHA), University of Washington, Seattle, WA, US. Retrieved from http://tascha.uw.edu/publications/global-

Herlambang Y.C.P., and Susanto, T.D. (2009). E-Leadership: The Effect of e-government Success in Indonesia. *Journal of Physics: Conference Series.*

Ho, A. T. K. (2002). Reinventing local governments and the e-government initiative. Public Administration Review, Vol. 62(4), 434-44.

Hobbs, I. (2001). Incentives will speed arrival of quality e-government. *Government Computer News.* 20(16): 46-7.

Holland, P., Light, B. and Gibson, N. (1999). *A critical success factors model for enterprise resource planning implementation.* Proceedings of the 7th European Conference on Information Systems, 1, 273-287.

Howard, J. (1997). *Investing for Growth*, Department of the Prime Minister, 1997, http://www.pm.gov.au/news/speeches/1997/industry.htm.

Ian, M., Sharief, M. and Graul, B. (2007). Government of Iraq E-government Strategy. USAID.

Independent Evaluation Group, The World Bank. (2011). *An evaluation of World Bank activities in Information and Communication Technologies:* Capturing technology for development. Retrieved from http://ieg.worldbankgroup.org/Data/reports/ict_evaluation.pdf

Industry Canada. (2008). *What is CAP?* Retrieved from http://www.ic.gc.ca/eic/site/cap-pac.nsf/eng/00006.html.

International Labour Office Geneva, (2008), Skills for improved productivity, employment growth and development, Retrieved February 25, 2016, from http://www.ilo.org/wcmsp5/groups/public/@ed_norm/@relconf/documents/meetingdocument/wcms_092054.pdf

International Development Research Centre. (2021). *Snapshot of Civil Registration and Vital Statistics Systems of South Africa.* Ottawa, Canada

Irani, Z., Love, P. E. D., & Jones, S. (2008). Learning lessons from evaluating e-government: Reflective case experiences that support transformational government. *Journal of Strategic Information Systems.*

Janja, N. (2011). Change management as a critical success factor in e-government implementation. *Journal of Business Systems Research*, 2(2).

Jankeeparsad, R.W., Jankeeparsad, T.R., and Nienaber, G. (2016). Acceptance of the electronic method of filing tax returns by South African taxpayers: An exploratory study. *Journal of Economic and Financial Sciences.* 9(1): 120-136.

Jonathan, G.M. (2020). Digital Transformation in the Public Sector: Identifying Critical Success Factors. EMCIS, LNBIP 381:223–235.

Kabir, S.M.S., (2016). *Basic Guidelines for Research: An Introductory Approach for All Disciplines*, (1st ed.). Chapter: 9, Publisher: Book Zone Publication, Chittagong-4203, Bangladesh: 201-275.

Kaisara, G., and Pather, S. (2009, 2–4 September). *e-government in South Africa: e-service quality access and adoption factors.* Paper presented at the 11th Annual Conference On World Wide Web Applications. Port Elizabeth.

Ke, W. and Wei, K.K. (2004). *Successful e-government in Singapore. Communications of the ACM,* 47(6).

Kenny, C. and Fink, C. (2004). Canyon or mirage? *The Economist*, 370(8359), 69.

Khanh, N.T.V. (2014). The critical factors affecting e-government adoption: A Conceptual Framework in Vietnam. SOOGSIL University, Seoul, South Korea.

Kifle, H., and Cheng, P. L. K. (2009). *e-Government Implementation and Leadership - the Brunei Case Study,* 7(3), 13.

Kumar, V., Mukerji, B., Butt, I., and Persaud, A. (2007). *Factors for Successful e-government Adoption: A Conceptual Framework.* The Electronic Journal of e-government Volume 5 Issue 1: 63 – 76.

Kuye, J. O. (2002). Critical perspectives on public administration: issues for consideration. Cape Town: Heinemann

Larsen, M. A., and Myers, M. D. (1999). When success turns into failure: a package-driven business process re-engineering project in the financial services industry. *Journal of Strategic Information Systems.* 8(4): 395-417.

Leedy, P. D., and Ormrod, J. E. (2005). *Practical Research: Planning and Design.* (8th ed.). Hoboken, NJ, US: Pearson Education.

Leedy, P. D., and Ormrod, J. E. (2015). *Practical Research: Planning and Design.* (11h ed.). Pearson Education Limited, England.

Ie-GP, 2013. Iraqi E-government Portal. Retrieved from, http://www.egov.gov.iq/egov-iraq/index.jsp?&lng=en, March 20, 2013.

Levin, A. (2002). *Success/Failure Case Study No.26: (Not) Providing Computers for all South African Civil Servants.* Retrieved 2013, 29 November, http://www.egov4dev.org/success/case/golaganang.shtml.

Li, Q., & Abdalla, E. O. (2014, January). The E-Government in Sudan: Challenges, barriers and prospects. In *2014 International Conference on Global Economy, Commerce and Service Science (GECSS-14)* (pp. 236-240). Atlantis Press.

Lowery, L. M. (2001). Developing a successful e-government strategy. Available at: http://unpan1.un.org/intradoc/groups/public/documents/apcity/unpan000343.Pdf

Luk, S. C. Y. (2009). The impact of leadership and *stakeholders* on the success/failure of e-government service: Using the case study of e-stamping service in Hong Kong. *Government Information Quarterly, 26(4), 594–604.*

MacIntosh, A., Roson, E., Smith, E and Whyte, A. *(2003). Electronic democracy and young people. Social Science Computer Review. 21(1): 43-54.*

Magoma, T. (2019). *The effectiveness of the South African Smart ID card: Fighting digital identity fraud*. Yoti, Creative Commons.

Malik, P., Gupta, V., and Dhillon, P. (2014). Citizen centric approach for e-governance: looking at the service delivery though the eyes of the citizens. *International Journal of Applied Engineering and Technology*, 4(2): 91-100.

Margetts, H. (2006). e-government in Britain—A Decade On. *Parliamentary Affairs,* 59(2), 250–265.

Maremi, K., Thulare, T., and Herselman, M. (2022). *The Benefits of Digital Transformation addressing the Hindrances and Challenges of e-Government Services in South Africa: A Scoping Review*. ST-Africa 2022 Conference Proceedings.

Masinde, M. and Mkhonto, M. (2019). *The critical success factors for e-government Implementation in South Africa's Local government: Factoring in Apartheid Digital Divide.* 2019 IEEE 2nd International Conference on Information and Computer Technologies.

Maumbe, B.M., Owei, V., and Alexander, H. (2008). Questioning the pace and pathway of e-government development in Africa: A case study of South Africa's Cape Gateway project. *Government Information Quarterly*. 25: 757–777

Mbeki, T. (2008), State of the Nation Address of the President of South Africa: Joint Sitting of Parliament, GCIS, Cape Town, 8 February 2008.

McClure, D.L. (2001) Electronic Government: Challenges Must Be Addressed with Effective Leadership and Management. GAO-01-959T, Testimony before the Senate Committee on Governmental Affairs, on behalf of the U.S. General Accounting Office, http://www.gao.gov/new.items/d01959t.pdf

McMullin, C. (2021). Migrant integration services and coping with the digital divide: Challenges and opportunities of the COVID-19 pandemic. *Voluntary Sector Review* 12: 129–36.

Meiyanti, R., Utomo, B., Sensuse, D. I., & Wahyuni, R. (2018, August). e-Government challenges in developing Countries: A literature review. In *2018 6th International Conference on Cyber and IT Service Management (CITSM)* (pp. 1-6). IEEE.

Miles, M. B., and Huberman, A. M. (1994). *Qualitative Data Analysis: An Expanded Source Book* (2nd ed.). Thousand Oaks, CA: Sage.

Mohammed, M. A., Aboobaider, B.M., Ibrahim, H., Abdullah, H.A., Ali, M.H., Jaber, M.M., and Shawkat, A. (2016). E-government and its Challenges in Developing Countries: Case Study Iraqi e-government. *The Social Sciences,* 11(17): 4310–4319.

Moon, M.J. (2002). The evolution of e-government among municipalities: rhetoric or reality. Public Administration Review, 62(4), 424-33.

Monga, A. (2008). E-government in India: Opportunities and challenges. *Journal of Administration and Governance*, 3(2).

Mpinganjira, M. (2013). E-government project failure in Africa: Lessons for reducing risk. *African Journal of Business Management*. 7(32): 3196-3201.

Mundy, D. and Musa, B. (2010). Towards a framework for e-government development in Nigeria. *Electronic Journal of e-government, 8(2), 148-61.*

Mutula, S. M. (2005). *Assessment of the e-readiness of small and medium sized enterprises in the ICT sector in Botswana, with special reference to information access*. Johannesburg: University of Johannesburg. http://etd.rau.ac.za/theses/available/etd-03172006-102255/

Mutula, S.M. and Mostert, J. (2010). Challenges and opportunities of e-government in South Africa. *The Electronic Library*. 28(1), 38–53.

Naidoo, G., Singh S., and Levine, N. (2011). Chapter 7: *An Overview of internet Developments and their impact on e-government in South Africa.* Handbook of research on E-Services in the Public Sector: E-government Strategies and Advancements. Information Science Reference. Hershey, New York.

Naidoo, G. (2012). Implementation of e-government in South Africa - successes and challenges: the way forward. *International Journal of Advances in Computing and Management.* 1(1): 62-66.

Naidu, S. and Chand, A. (2018). Exploring the Problems, Issues and Challenges of E-government in Kiribati. e-Service Journal, 10(3): 1-23.

National Information Centre (NIC). (2007a). *Sudan e-government master plan.* Khartoum: National Information Centre.

Napitupulu, D., and Sensuse, D.I. (2014). The critical success factors Study for e-government Implementation. *International Journal of Computer Applications*. 89(16).

Napitupulu, D. (2017). Empirical Study of critical success factors for e-government Implementation in Indonesia Based on Factor Analysis Approach. *Jurnal Bina Praja.* 9 (1): 83-99.

Nawafleh, S. A., Obiedat, R. F., and Harfoushi, O. K. (2012). e-government between Developed and Developing Countries, *iJAC*, 5(1).

Ndou, V.D. (2004). E-government for developing countries: Opportunities and challenges. *Electronic Journal of Information Systems in Developing Countries*. 18(1): 1-24.

Neuman, W. L. (2011). *Social research methods: qualitative and quantitative approaches*. (Sixth ed.). Hoboken, NJ, US: Pearson International.

Nkwe, N. (2011). State of information technology Auditing in Botswana, Asian Journal of Finance and Accounting, 3(1).

Nkwe, N. (2012). E-government: Challenges and Opportunities in Botswana. I*nternational Journal of Humanities and Social Science, 2 (17).*

NOIE, *Customer Focused Portals Framework*, National Office for the Information Economy, 2000, http://www. govonline.gov.au/projects/services&innovation/portalsframework.htm.

Nurdin, N., Stockdale, R. and Scheepers, H. (2012). Organisational adaptation to sustain information technology: The case of e-government in developing countries. *Electronic Journal of e-government*, *10*(1), 70–83.

Nyansiro, J. B., Mtebe, J. S., & Kissaka, M. M. (2021). E-government information systems (IS) project failure in developing countries: Lessons from the literature*. The African Journal of Information and Communication (AJIC),* 28, 1-29.

Oberholzer, W. (2019). *5 challenges faced by new Sars Commissioner.* Available at https://www.iol.co.za/business-report/economy/5-challenges-faced-by-new-sars-commissioner-22350978. Accessed on 28th February 2021.

OECD. (2001). *Engaging Citizens in Policy Making: Information, Consultation and Policy Participation,* Puma Policy Brief No. 10.

OECD. (2003). OECD e-government Flagship Report "The e-government Imperative," Public Management Committee, Paris: OECD.

OECD. (2009). Government at a glance, organisation for economic cooperation and development. Available at http://browse.oecdbookshop.org/ oecd/pdfs/browseit/4209151e.pdf. Accessed on 30.12.10.

Ojha, S., and Pandey, I.M. (2017). Management and financing of e-government projects in India: Does financing strategy add value? *IIMB Management Review,* 29, 90–108.

Oki, O., and Lawrence, M.O. (2022). The cost-effectiveness of fibre optic technology deployment in rural area: a case study of Mdantsane. *Journal on Innovation and Sustainability,* 13:2

Organisation of American States. (2010). *About e-government.* Available at http://portal.oas.org/portal/sector/sap/departamentoparalagesti%C3%B3np%C3%BAblicaefectiva/npa/sobreprogramadeegobierno/tabid/811/default.aspx?language=en-us Accessed 27th February, 2021.

O'Sullivan, S. and Walker, C. (2018) From the interpersonal to the internet: social service digitisation and the implications for vulnerable individuals and communities, *Australian Journal of Political Science,* 53:4, 490-507.

Oxford learners dictionary. Definition of legacy. Available at https://www.oxfordlearnersdictionaries.com. Accessed 19th February, 2023.

Park, S. 2017. "Digital Inequalities in Rural Australia: A Double Jeopardy of Remoteness and Social Exclusion." *Journal of Rural Studies* 54: 399–407.

Pillay, K.N. (2012). E-Government in South Africa: Predictors to failure and success. *Gov. ICT,* 6(3): 21–39.

Pleace, N. (2007). E-government and the United Kingdom. Routledge, New York, USA.

Prasojo, E. (2012). Indonesian Bureaucratic Reform in the Making. *The Jakarta Post*, *08/03/2012.*

Ranga, G., and Flowerday, S. (2007). *Identity and access management for the distribution of social grants in South Africa.*

Rangarirai Matavire, W.C. (2010). Challenges of e-government project implementation in African context. *Electronic Journal of Information Systems Evaluation,* 13(2): 153-164.

Razzano, G. (2021). *Digital Identity in South Africa.* A project of the Centre for Internet and Society (CIS), and Research ICT Africa (RIA).

Riley, B.T. (2001). *Electronic Governance and Electronic Democracy: Living and Working in The Connected World, Vol. 2*, Commonwealth Centre for Electronic Governance, Brisbane, Australia.

Roberts, H. and Barrar, P. (1992). *MRPII implementation: key factors for success*. Computer Integrated Manufacturing Systems, 5(1), 3-18

Samsor. A.M. (2020). *Challenges and prospects of e-government implementation in Afghanistan.* International Trade and Development. Emerald Publishing Limited.

SARS e-filing. (2013). *What is e-Filing?* Available: http://www.sarseFiling.co.za/AboutPage.aspx. Accessed 5th September 2020.

Seacom. (2022). The difference between ICT and IT. Available at https://seacom.co.za/business-insights/the-difference-between-ict-and-it/ Accessed on the16th January 2023

Seifert, W., and Bonham, G. (2003). The Transformative Potential of e-government in Transitional Democracies. *Public Management. Electronic Journal, 2:* 19-22.

Singh, S., and Averweg, U. (2015). Exploring the design and development of the electronic government (e-government) systems landscape in South Africa. *Information Technology in Developing Countries*, *25*(1)

Singh, S., and Travica, B. (2018). *E-government systems in South Africa: An info culture perspective. E J Info Sys Dev Countries*. 2018;84: e12030.1-16

Singh, K. (2021, January 8). Home Affairs proposes new identity policy. IOL News. https://www.iol.co.za/mercury/news/home-affairs-proposes-new-identity-policy-a7fc4211- fed0-4162-adf0-13f42d97c5e9

Singh, V. and Chobotaru, J. (2022). Digital Divide: Barriers to Accessing Online Government Services in Canada. Adm. Sci. 12, 112.

Smith, B. (2002). E-government in Local Councils. Hunter's Hill Council.

Soufiane, B.M. & Ibrahim, M.B. (2018). Factors Affecting the Adoption of Electronic Government in Algeria: A Proposed Framework. *Journal of Advanced Research in Business and Management Studies,* 10(1), 52-64.

South African Government News Agency. (2010). *National Population Register targets new births.* Available: https://www.sanews.gov.za/south-africa/national-population-register-targets-new-births. Accessed 5th January 2021

South African Government News Agency. (2019). *Home Affairs issues 13m Smart ID card systems.* Available at https://www.sanews.gov.za/south-africa/home-affairs-issues-13m-smart-id-cards. Accessed on 7 March 2021.

South African Revenue Services. (2023). e-Filing Benefits. Available at https://www.sarsefiling.co.za/Benefits.aspx. Accessed on the 19th of January 2023.

Smit, B. (2002). *Atlas.ti for qualitative data analysis.* Perspectives in Education, Vol. 20(3), September 2002

Statistics South Africa. (2016). *General Household Survey.* Pretoria, South Africa.

Statistics South Africa. (2018) General Household Survey. Pretoria, South Africa.

Teicher, J. and Dow, N. (2002). E-government in Australia: Promise and Progress. Information Polity 7: 231–246.

Tele-community, A-P (2012), *E-government Implementation in Asia-Pacific Developing Countries and its Challenges and Obstacles*, Vol. 5, ASTAP/REPT, Bangkok, ASTAP20, Bangkok,

Thakur, S. and Singh, S. (2013). Study of Some e-government Activities in South Africa. *African Journal of Computing and ICTs*. 6(2): 41-54.

The Economist. (2003). Government by computer: but some say drinking water should come first. March 22: 38-9.

The World Bank. (2017). *The State of Identification Systems in Africa*. Washington, DC.

The World Bank. (2019). *South African ID Case Study.* Washington, DC.

Timeslive. (2019). SARS IT boss Mmamathe Makhekhe-Mokhuane suspended. Available from https://www.timeslive.co.za/news/south-africa/2019-08-21-sars-it-boss-mmamathe-makheke-mokhuane-is-suspended-pending-dc/. Accessed on the 19th of January 2023.

Torki, A., Mohamed, Z., and Sarmad, A. (2006). Critical Success Factors of E-government: A Proposed Model for E-government Implementation. *IEEEXplore.*

United Nations Development Programme (2003). *UN Global e-government Survey*. New York: United Nations.

United Nations, World Public Sector Report (2003). *E-government at the Crossroads*, United Nations, Economic and Social Affairs, New York.

UNDP. (2006). *The 2006 Human Development Report – Beyond scarcity: power, poverty and the global water crisis,* UNDP, New York.

UNDP Libya, (2013), Newsletter September 2013, Retrieved February 21, 2016, from http://www.ly.undp.org/content/dam/libya/docs/Newsletter/newsletter3_10_2013%20Eng.pdf

UN-Habitat. (2009). *Global report on human settlements 2009: Planning sustainable cities.* UK and USA, Earthscan.

Venter, I., Craffert, L., van Greunen, D., Veldsman, A., Candi, M., Sigurdarson, H.T. (2019). Diagnosis of the digital landscape in South Africa – skills, infrastructure and available Technologies. https://project.commongoodfirst.com/ Accessed 16/01/2023.

Vivier, E., Seabe, D., Wentzel, M. & Sanchez, D. (2015). From information to engagement: Exploring communication platforms for the government-citizen interface in South Africa *The African Journal of Information and Communication (AJIC) ,15*

Wamoto, F.O. (2015). E-government implementation in Kenya, an evaluation of factors hindering or promoting e-government successful implementation. *International Journal of*

Computer Applications Technology and Research, 4(12): 906 – 915.

Wee, S. (2000). Juggling toward ERP success: keep key success factors highly. ERP News, February, retrieved from: http: //www. erpnews.com/erpnews/erp904/02get.html

Weerakkody, V., and Dhillon, G. (2008). Moving from e-government to T-government: A study of process re-engineering challenges in a UK local authority context. *International Journal of Electronic Government Research,* 4(4), 1–16.

Weerakkodya, V., El-Haddadeha, R., Sabolb, T., Ghoneima, A., and Dzupkab, P. (2012). E-government implementation strategies in developed and transition economies: A comparative study. *International Journal of Information Management,* 32: 66– 74.

Yousef, F., Kamal, B., Scott, T., and Suraj, A. (2014). *The Adoption of e-government in Arab Countries: The Case of Libya.* Proceedings of the European Conference on e-government, Romania.

Zaied, A.N.H., Ali, A.H. and El-Ghareeb, H.A. (2017). E-government Adoption in Egypt: Analysis, Challenges and Prospects. *International Journal of Engineering Trends and Technology (IJETT),* 52(2).

Zakaria, M. R. and Gebba, T. R. (2014). Towards Categorising e-government Services: The Case of Egypt, *International Journal of Business Research and Development 3(3): 6-28*

Ziemba, E., Papaj, T., and Jadamus-Hacura, M. (2015). E-government success factors: a perspective on government units. *Issues in Information Systems.* 16(II): 16-27.

Annexure 1: Interview questions (Same were in the questionnaire)

Interview questions for officials working in the ICT Unit for each of the e-government initiatives.

1. **Technical staff:**
- What training did the technical staff undergo?
- Were there adequate technical staff when the system was implemented?
- Are there adequate technical staff to fix problems when they arise with the system?
- What is the turnover rate with technical staff?

2. **Change management:**
- Did change management take place with the frontline workers from the previous system that was used to the e-government system, and how did it take place?
- How is change management sustained?

3. **Awareness:**
- What means were used to communicate the e-government service to the citizens?
- Are these awareness programmes being sustained after the initial communication?

4. **Strategy:**
- Was there a strategy for the implementation of the e-government project?
- Were the relevant stakeholders involved in the development of the strategy and was it implemented as per the strategy implementation plan?

5. **Top management support:**
- Was there top management support from the inception of the e-government initiative?
- Was it visible during all stages of the initiative?
- What support was provided by Top Management?

6. **Leadership:**
- Was there a strong leader supporting (DG/CEO and the Minister) the e-government initiative, by making things happen?
- Would you say that the e-government initiative was a high priority for the leadership?
- What support was provided by the leadership?

7. **Citizen centric:**
- Would you say that the e-government service is easily accessible, user friendly and quick to complete for the citizens?
- Did the e-government initiative consider the needs of different people during the development stages?

8. **Funding:**
- Was there adequate funding for the e-government project?
- Are funds being allocated yearly for maintenance and enhancements?

Annexure 2: Ethics Clearance Certificate

UNIVERSITY OF THE
WITWATERSRAND,
JOHANNESBURG

Research Office

HUMAN RESEARCH ETHICS COMMITTEE (NON-MEDICAL)
R14/49 Subramoney

CLEARANCE CERTIFICATE	**PROTOCOL NUMBER: H21/06/32**
PROJECT TITLE	Factors influencing the successful adoption of selected e-government initiatives in South Africa
INVESTIGATOR(S)	Dr S Subramoney
SCHOOL/DEPARTMENT	Wits School of Governance/
DATE CONSIDERED	18 June 2021
DECISION OF THE COMMITTEE	Approved Risk Level: Minimal
EXPIRY DATE	08 July 2024
DATE 09 July 2021	**CHAIRPERSON** ______________________ (Professor J Watermeyer)

cc: Supervisor : Lynge H Prof

DECLARATION OF INVESTIGATOR(S)

To be completed in duplicate and **ONE COPY** returned to the Secretary at Room 10004, 10th Floor, Senate House, University. Unreported changes to the application may invalidate the clearance given by the HREC (Non-Medical)

I/We fully understand the conditions under which I am/we are authorized to carry out the abovementioned research and I/we guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I/we undertake to submit an amendment of the protocol to the Committee. **I agree to completion of a regular progress report. For Minimal and Low studies, this is due annually on 31 December. For Medium and High Risk studies, this is due twice annually on 30 June and 31 December.**

S Subramoney
____
Signature

18 / 02 / 2022
Date

PLEASE QUOTE THE PROTOCOL NUMBER ON ALL ENQUIRIES

Annexure 3: Desktop Research Undertaken for the Selected e-government Initiatives

Engelbrecht, L. (2007). Home Affairs opens up. Available: https://www.itweb.co.za/content/rW1xL75GoOEqRk6m. Accessed 5th January 2021.

Department of Home Affairs. (2019). *White Paper on Home Affairs.* Pretoria, South Africa.

Department of Home Affairs. (2019/20). *Annual Report*. Pretoria, South Africa.

Department of Home Affairs. (2021/22). *Annual Report*. Pretoria, South Africa.

Department of Home Affairs. (2020). Draft Official Identity Management Policy (Public Consultation Version). http://www.dha.gov.za/images/PDFs/Draft_Official_Identity_Management_Policy_-_Gazette_Version_of_22122020.pdf

Department of Home Affairs. (2020). *Strategic Plan 2020-2025*. Pretoria, South Africa.

SARS e-filing. (2013). *What is e-Filing?* Available: http://www.sarseFiling.co.za/AboutPage.aspx. Accessed 5th September 2020.

South African Government News Agency. (2010). *National Population Register targets new births.* Available: https://www.sanews.gov.za/south-africa/national-population-register-targets-new-births. Accessed 5th January 2021.

South African Government News Agency. (2019). *Home Affairs issues 13m Smart ID card systems.* Available at https://www.sanews.gov.za/south-africa/home-affairs-issues-13m-smart-id-cards. Accessed on 7 March 2021.

South African Revenue Services. (2023). e-Filing Benefits. Available at https://www.sarsefiling.co.za/Benefits.aspx. Accessed on the 19th of January 2023.